

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:06:33 ; Search time 32 Seconds  
(without alignments)  
607,956 Million cell updates/sec

Title: US-09-886-856-2

Perfect score: 787  
Sequence: 1 PALPEDGSGGAPPPHFKDP.....GPKTGPQKAILFLPMASAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database :  
1: A\_Geneseq\_101002.\*  
2: /SID2/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.\*  
3: /SID2/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.\*  
4: /SID2/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.\*  
5: /SID2/gcgdata/geneseq/geneseq-emb1/AA1983.DAT.\*  
6: /SID2/gcgdata/geneseq/geneseq-emb1/AA1984.DAT.\*  
7: /SID2/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.\*  
8: /SID2/gcgdata/geneseq/geneseq-emb1/AA1986.DAT.\*  
9: /SID2/gcgdata/geneseq/geneseq-emb1/AA1987.DAT.\*  
10: /SID2/gcgdata/geneseq/geneseq-emb1/AA1988.DAT.\*  
11: /SID2/gcgdata/geneseq/geneseq-emb1/AA1989.DAT.\*  
12: /SID2/gcgdata/geneseq/geneseq-emb1/AA1990.DAT.\*  
13: /SID2/gcgdata/geneseq/geneseq-emb1/AA1991.DAT.\*  
14: /SID2/gcgdata/geneseq/geneseq-emb1/AA1992.DAT.\*  
15: /SID2/gcgdata/geneseq/geneseq-emb1/AA1993.DAT.\*  
16: /SID2/gcgdata/geneseq/geneseq-emb1/AA1994.DAT.\*  
17: /SID2/gcgdata/geneseq/geneseq-emb1/AA1995.DAT.\*  
18: /SID2/gcgdata/geneseq/geneseq-emb1/AA1996.DAT.\*  
19: /SID2/gcgdata/geneseq/geneseq-emb1/AA1997.DAT.\*  
20: /SID2/gcgdata/geneseq/geneseq-emb1/AA1998.DAT.\*  
21: /SID2/gcgdata/geneseq/geneseq-emb1/AA1999.DAT.\*  
22: /SID2/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.\*  
23: /SID2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.\*  
24: /SID2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	787	100.0	146	8 AAP71145	Basic fibroblast g
2	787	100.0	146	8 AAP25943	Bovine basic FGF.
3	787	100.0	146	13 AAR2717	Mammalian basic FG
4	787	100.0	146	21 AAY87848	Bovine FGF-2 prote
5	787	100.0	146	21 AAY81941	Recombinant bovine
6	787	100.0	146	22 AAE11973	Bovine fibroblast
7	787	100.0	146	23 AAE21684	Bovine fibroblast
8	787	100.0	146	23 AAU12078	Bovine fibroblast
9	787	100.0	147	9 AAP80613	Sequence of manufa
10	787	100.0	147	10 AAP90085	Bovine basic fibro

11	787	100.0	155	8 AAP70671	Sequence of bovine
12	787	100.0	155	18 AAP20029	Recombinant bovine
13	787	100.0	155	22 AAE11975	Bovine fibroblast
14	787	100.0	155	23 AAE21686	Bovine fibroblast
15	787	100.0	155	23 AA012080	Bovine 155 amino a
16	787	100.0	273	22 AAB49978	3-D structure deta
17	776	98.6	146	9 AAP82579	Human basic fibrob
18	776	98.6	146	13 AAR25423	bFGF derivative.
19	776	98.6	146	21 AAY87847	Human FGF-2 protel
20	776	98.6	146	22 AAE11974	Human fibroblast g
21	776	98.6	146	22 AAG62612	Human basic Insul1
22	776	98.6	146	23 AAE21683	Human fibroblast g
23	776	98.6	146	23 AAU12079	Human fibroblast g
24	776	98.6	148	13 AAR22233	bFGF truncated at
25	776	98.6	153	16 AAR11414	Human basic fibrob
26	776	98.6	154	16 AAR11413	Human basic fibrob
27	776	98.6	154	17 AAR89473	Human basic fibrob
28	776	98.6	154	23 ABB09967	Human basic fibrob
29	776	98.6	154	23 ABB83829	Human bFGF related
30	776	98.6	155	8 AAP70301	Sequence of human
31	776	98.6	155	10 AAP94038	Human basic fibrob
32	776	98.6	155	11 AAR05314	Human basic fibrob
33	776	98.6	155	13 AAR22232	bFGF truncated at
34	776	98.6	155	14 AAR40159	Human bFGF peptide
35	776	98.6	155	15 AAR53270	glu3.5 hbFGF Hom
36	776	98.6	155	16 AAR80777	Fibroblast growth
37	776	98.6	155	16 AAR70204	Human bFGF. Homo
38	776	98.6	155	16 AAR70823	FGF-2. Homo sapie
39	776	98.6	155	18 AAR33338	Human fibronectin
40	776	98.6	155	18 AAV19595	Biologically activ
41	776	98.6	155	19 AAV05456	Fibronectin recept
42	776	98.6	155	19 AAW5712	Fibroblast growth
43	776	98.6	155	19 AAW1386	SSV mutant of fib
44	776	98.6	155	19 AAW1379	18 kDa form of fib
45	776	98.6	155	19 AAW53023	Fibroblast growth

#### ALIGNMENTS

RESULT 1  
AAP71145  
ID AAP71145 standard; protein: 146 AA.  
AC AAP71145:  
XX  
XX 11-MAR-1991 (first entry)  
DT  
XX Basic fibroblast growth factor.  
DE  
XX Mitogenic; angiogenic; bFGF.  
KW Bos taurus.  
OS  
XX  
XX W08607595-A.  
XX 31-DEC-1986.  
XX  
XX 18-JUN-1986; 86MO-US01318.  
XX 20-JUN-1985; 85US-0747154.  
XX  
XX (SALK ) SALK INST FOR BIOL STUD.  
XX  
XX Esch Fs, Bohlen P, Baird A, Gospodarowicz DJ, Ling NCK;  
XX WPL, 1987-007193/01.  
XX  
XX pure basic fibroblast growth factor - produced by inserting  
XX synthesised DNA chain into cloning vector and producing  
XX transformed cell lines.  
XX  
XX Claim 1; Page 24; 29pp; English.  
PS

Nichols C.  
09/886856  
Seq. IDs 244 Page 1

XX The purified bFGF may be easily produced from an expression system  
 CC transformed by a vector carrying the sequence encoding the  
 CC polypeptide. The bFGF peptides are mitogenic for a wide variety of  
 CC cultured diploid cells, may be used in promoting in vitro growth of  
 CC cell lines, and in eliciting an angiogenic response and thus in  
 CC therapeutic applications.

XX Sequence 146 AA:

Query Match 100.0%; Score 787; DB 8; Length 146;

Best Local Similarity 100.0%; Pred. No. 6e-78; Mismatches 0; Indels 0; Gaps 0;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKRLCKNGGFLLRHPDGRVDGVRKSDPIKIQLOAEER 60  
 DB 1 PALPEDGSGAFPFGHFKDKRLCKNGGFLLRHPDGRVDGVRKSDPIKIQLOAEER 60  
 QY 61 GVVSIKGVCANRRLAMKEDRLASKCVTDECFEFERLESNNNTYRSRKYSSWYVALKR 120  
 DB 61 GVVSIKGVCANRRLAMKEDRLASKCVTDECFEFERLESNNNTYRSRKYSSWYVALKR 120  
 QY 121 TGOYKLGPKTGPQKALFLPMSAKS 146  
 DB 121 TGOYKLGPKTGPQKALFLPMSAKS 146

RESULT 2  
 AAR25943  
 ID AAR25943 standard; peptide; 146 AA.

AC AAR25943;

DT 25-JAN-1993 (first entry)

DE Bovine basic FGF.

XX Fibroblast growth factor; fragment; analogue; antagonist; growth;

KM vasoproliferation; diabetic retinopathy; glomerulonephritis;

KW chondrosarcoma; adrenal vascularisation; neovascularisation;

KM melanomas; hst/K53.

XX Bos taurus.

OS US5132408-A.

PN 21-JUL-1992.

PD 14-NOV-1988; 88US-0270225.

PR 14-NOV-1988; 88US-0270225.

XX (SALK) SALK INST BIOLOGICAL STUDIES.

PA Baird AJ, Ling NC;

PI WPI; 1992-267992/32.

DR New polypeptide(s) as fibroblast growth factor antagonists - for

XX treatment of chondrosarcoma, diabetic retinopathy and

XX glomerulonephritis and for diagnosis

PS Disclosure; Page 1; 12pp; English.

XX The peptide is a bovine basic fibroblast growth factor. Truncated

CC analogues of this peptide (esp. comprising residues 24-68) can be

CC used as bFGF antagonists, and can therefore interact or inhibit the

CC FGF receptor and modulate endothelial and other cell growth. The

CC peptide analogues can be used in human and veterinary medicine for

CC diagnosing and treating vasoproliferative diseases of the eye (e.g.

CC diabetic retinopathies), kidney (e.g. glomerulonephritis), tumours

CC (e.g. chondrosarcoma), adrenal vascularisation and to inhibit

CC neovascularisation of solid tumours. The peptide analogue should

CC also be effective in combating the growth of human melanomas and

CC other melanocytes and the growth promotion of certain related

CC oncogenes such as hst/K53. See also AAR25944-5.

XX Sequence 146 AA:

Query Match 100.0%; Score 787; DB 13; Length 146;

Best Local Similarity 100.0%; Pred. No. 6e-78; Mismatches 0; Indels 0; Gaps 0;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKRLCKNGGFLLRHPDGRVDGVRKSDPIKIQLOAEER 60  
 DB 1 PALPEDGSGAFPFGHFKDKRLCKNGGFLLRHPDGRVDGVRKSDPIKIQLOAEER 60  
 QY 61 GVVSIKGVCANRRLAMKEDRLASKCVTDECFEFERLESNNNTYRSRKYSSWYVALKR 120  
 DB 61 GVVSIKGVCANRRLAMKEDRLASKCVTDECFEFERLESNNNTYRSRKYSSWYVALKR 120  
 QY 121 TGOYKLGPKTGPQKALFLPMSAKS 146  
 DB 121 TGOYKLGPKTGPQKALFLPMSAKS 146

RESULT 3  
 AAR27717  
 ID AAR27717 standard; protein; 146 AA.

AC AAR27717;

DT 16-MAR-1993 (first entry)

DE Mammalian basic FGF.

XX Basic fibroblast growth factor; FGF; cation exchange HPLC;

KM reverse-phase HPLC; homogeneity; recombinant DNA; disulphide bond;

KW non-toxic salt; pharmaceutical; diagnostic; therapeutic;

KM in vitro cell proliferation; nerve regeneration; wound healing.

XX Bos taurus.

OS US5155214-A.

PN 13-OCT-1992.

PD 05-MAR-1984; 84US-0586518.

PR 05-MAR-1984; 84US-0586518.

PR 09-NOV-1984; 84US-0670160.

PR 20-JUN-1985; 85US-0747154.

PR 10-DEC-1986; 86US-0940524.

PR 31-DEC-1987; 87US-0139953.

PR 08-JAN-1990; 90US-0462126.

XX (SALK) SALK INST BIOLOGICAL STUDIES.

PA Baird AJ, Bohlen P, Esch FS, Gospodarowicz D, Ling NC;

PI WPI; 1992-365559/44.

DR Purified mammalian basic fibroblast growth factor - produced by

XX recombinant method, is useful e.g. for promoting wound healing

XX Claim 1; Column 24; 24pp; English.

XX This substantially pure protein was purified from partially purified

CC basic fibroblast growth factor (FGF) by cation exchange HPLC and two

CC reverse-phase HPLC steps. Having purified this protein to apparent

CC homogeneity the amino acid sequence can be determined and pure basic

CC FGF may be synthesised using recombinant DNA techniques (see also

CC AA029741). This peptide is biologically active and exhibits either no

CC or random disulphide bonding within the molecule. This protein, an

CC analogue, a biologically active fragment, or a non-toxic salt of it

CC may be used in a pharmaceutical composition for diagnostic or

CC therapeutic uses. This may be used in in vitro cell proliferation  
 CC procedures, eg. nerve regeneration and wound healing.

XX Sequence 146 AA;

Query Match 100.0%; Score 787; DB 13; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 6e-78;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGSGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVDGVRKSDPHIKQLQAEER 60  
 DB 1 PALPEDGSGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVDGVRKSDPHIKQLQAEER 60  
 OY 61 GVSISIGVCANRYLAMKEDGRLLASKCVYDECFEFLERLESNNYNTYRSKRYSSWYALKR 120  
 DB 61 GVSISIGVCANRYLAMKEDGRLLASKCVYDECFEFLERLESNNYNTYRSKRYSSWYALKR 120  
 OY 121 TGQYKLGPKTGPQKAILFLPMSAKS 146  
 DB 121 TGQYKLGPKTGPQKAILFLPMSAKS 146

#### RESULT 4

AA87848  
 ID AAY87848 standard; protein; 146 AA.

AC AAY87848;

DT 01-SEP-2000 (first entry)

DE Bovine FGF-2 protein.

KW FGF-2; fibroblast growth factor; cardiant; treatment; angiogenesis;  
 KW coronary artery disease; myocardial infarction injury; bovine.

OS Bos taurus.

PN WO200021548-A2.

PD 20-APR-2000.

PF 13-OCT-1999; 99WO-US22936.

PR 13-OCT-1998; 98US-0104103.

PA (CHIR ) CHIRON CORP.  
 (WHIT/) WHITEHOUSE M J.

PI Kavanaugh WM;

DR MPI: 2000-317840/27.

DR N-PSDB; AAA39555.

PT Novel unit dose comprising fibroblast growth factor, its angiogenically  
 PT active fragment or muten for inducing cardiac angiogenesis, treating  
 PT coronary artery disease and reducing post myocardial infarction injury

XX Claim 1; Page 58; 67pp; English.

XX This invention describes a novel unit dose (I), of fibroblast growth  
 CC factor (FGF) comprising 0.008-6.1 mg of a mammalian FGF comprising  
 CC sequence of 140 ((II) and (III)), 146 ((IV) and (V)), 205 ((VI), 266  
 CC ((VII), 207 ((VIII) and (XI)), 215 ((IX), and 208 ((X) amino acids (aa),  
 CC given in the specification, its angiogenically active fragment or  
 CC muten. The product of the invention has angiogenic and cardiant  
 CC activity. (I) is used for treating a human patient for coronary artery  
 CC disease, and inducing angiogenesis in the human heart. (I) further  
 CC provides an adjunct for reducing post myocardial infarction injury in  
 CC humans. The unit dose provides the human patient with a rapid and  
 CC therapeutic cardiac angiogenesis sufficient to obviate surgical  
 CC intervention and results in an superior increase in the treated  
 CC patients's exercise tolerance time (ETT). It also provides a safe and

CC therapeutically efficacious treatment for the patients with coronary  
 CC artery disease that lasts at least 6 months before a further treatment  
 CC is needed. The method provides superior increase of 1.5-2 minutes in  
 CC the treated patient's (ETT), compared to an increase of 30 seconds for  
 CC current modes treatment. This sequence represents the bovine FGF-2  
 CC protein fragment described in the method of the invention.

XX Sequence 146 AA;

Query Match 100.0%; Score 787; DB 21; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 6e-78;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGSGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVDGVRKSDPHIKQLQAEER 60  
 DB 1 PALPEDGSGAPPPGHFKDPKRLCYCKNGGFLLRIHPDGRVDGVRKSDPHIKQLQAEER 60  
 OY 61 GVSISIGVCANRYLAMKEDGRLLASKCVYDECFEFLERLESNNYNTYRSKRYSSWYALKR 120  
 DB 61 GVSISIGVCANRYLAMKEDGRLLASKCVYDECFEFLERLESNNYNTYRSKRYSSWYALKR 120  
 OY 121 TGQYKLGPKTGPQKAILFLPMSAKS 146  
 DB 121 TGQYKLGPKTGPQKAILFLPMSAKS 146

#### RESULT 5

AA81941  
 ID AAY81941 standard; Protein; 146 AA.

AC AAY81941;

DT 30-JUN-2000 (first entry)

DE Recombinant bovine FGF-2 protein sequence.

KW FGF-2; cow; fibroblast growth factor 2; angiogenesis; unstable angina;  
 KW coronary artery disease; human; acute myocardial infarction; therapy.

OS Bos taurus.

PN WO200013701-A2.

PD 16-MAR-2000.

PF 27-AUG-1999; 99WO-US19770.

PR 03-SEP-1998; 98US-0145743.

PR 13-OCT-1998; 98US-0104102.

PR 13-OCT-1998; 98US-0104103.

PA (CHIR ) CHIRON CORP.  
 (WHIT/) WHITEHOUSE M J.

DR MPI: 2000-256860/22.

DR N-PSDB; AAA07355.

XX Claim 3; Page 58-59; 60pp; English.

XX This sequence represents a recombinant bovine fibroblast growth factor-2  
 CC (FGF-2) sequence. The invention relates to a unit dose composition  
 CC (I) for inducing angiogenesis in a human, comprising 0.008-7.2 mg of  
 CC FGF-2 or an angiogenically active fragment or muten of FGF-2. The  
 CC composition (I) and recombinant FGF-2 are useful for treating coronary  
 CC artery disease or inducing angiogenesis in a human patient. Recombinant  
 CC FGF-2 may be used to treat unstable angina and acute myocardial  
 CC infarction.

Query Match 100.0%; Score 787; DB 21; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 6e-78;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHKKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHIKLOQAER 60  
 |||  
 DB 1 PALPEDGSGAFPFGHKKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHIKLOQAER 60  
 |||  
 QY 61 GVSIRKVCANRYLAMKEDGRLASKCVTDCFFERLESNNYTYRSRKYSSWYVALKR 120  
 |||  
 DB 61 GVSIRKVCANRYLAMKEDGRLASKCVTDCFFERLESNNYTYRSRKYSSWYVALKR 120  
 |||  
 QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 |||  
 DB 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 |||

RESULT 6  
 ID AAE11973 standard; Protein: 146 AA.  
 AC AAE11973;  
 XX 18-DEC-2001 (first entry)  
 DT  
 DE Bovine fibroblast growth factor-2 (FGF-2) #1.  
 XX  
 KW Bovine; therapy; erectile dysfunction; fibroblast growth factor-2; FGF-2;  
 KW epidermal growth factor; EGF; platelet derived growth factor; PDGF;  
 KW vascular endothelial growth factor; VEGF; tissue growth factor; TGF;  
 KW impotence; vasotropic.  
 XX  
 OS Bos taurus.  
 XX  
 PN WO200168125-A2.  
 XX  
 PD 20-SEP-2001.  
 XX  
 PF 09-MAR-2001; 2001WO-US07702.  
 XX  
 PR 10-MAR-2000; 2000US-188480P.  
 PR 11-MAY-2000; 2000US-203415P.  
 XX  
 PA (CHIR) CHIRON CORP.  
 XX  
 PI Whitehouse NJ;  
 XX  
 DR WPI: 2001-616273/71.  
 DR N-PSDB: AAD19520.  
 XX  
 FT Treating or preventing erectile dysfunction, comprises administering  
 FT growth factor, particularly fibroblast growth factor to blood vessels  
 FT in the penis, groin or leg  
 XX  
 PS Claim 6; Page 31; 35pp; English.  
 XX  
 CC The present invention relates to a method for treating or preventing  
 CC erectile dysfunction, comprising administering a fibroblast growth  
 CC factor (FGF), epidermal growth factor (EGF), platelet derived growth  
 CC factor (PDGF), vascular endothelial growth factor (VEGF) or tissue  
 CC growth factor (TGF). The invention is used to treat or prevent erectile  
 CC dysfunction, or impotence. The present sequence is a bovine FGF-2  
 CC protein.  
 CC  
 SQ Sequence 146 AA;  
 Query Match 100.0%; Score 787; DB 22; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 6e-78;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHKKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHIKLOQAER 60  
 |||  
 |||

DB 1 PALPEDGSGAFPFGHKKDKPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHIKLOQAER 60  
 QY 61 GVSIRKVCANRYLAMKEDGRLASKCVTDCFFERLESNNYTYRSRKYSSWYVALKR 120  
 |||  
 DB 61 GVSIRKVCANRYLAMKEDGRLASKCVTDCFFERLESNNYTYRSRKYSSWYVALKR 120  
 |||  
 QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 |||  
 DB 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 |||

RESULT 7  
 ID AAE21684 standard; Protein: 146 AA.  
 AC AAE21684;  
 XX 16-JUL-2002 (first entry)  
 DT  
 DE Bovine fibroblast growth factor-2 (FGF-2) partial protein.  
 XX  
 KW Bovine; pharmaceutical composition; fibroblast growth factor; FGF;  
 KW tissue regeneration; therapy; wound; ischemic heart disease; stroke;  
 KW bone fracture healing; vulnary; cerebroprotective; vasotropic.  
 XX  
 OS Bos taurus.  
 XX  
 FH Key Location/Qualifiers  
 FT Binding-site 18..22  
 FT Binding-site /note= "Heparin binding site"  
 FT Binding-site 36..39  
 FT Binding-site /note= "Cell binding site"  
 FT Binding-site 77..81  
 FT Binding-site /note= "Cell binding site"  
 FT Binding-site 107..111  
 FT Binding-site /note= "Heparin binding site"  
 FT  
 PN WO200217956-A2.  
 XX  
 PD 07-MAR-2002.  
 XX  
 PF 31-AUG-2001; 2001WO-US27209.  
 XX  
 PR 31-AUG-2000; 2000US-229238P.  
 XX  
 PA (CHIR) CHIRON CORP.  
 XX  
 PI Hageman RV, Shirley BA, Bajwa KK;  
 XX  
 DR WPI: 2002-329732/36.  
 DR N-PSDB: AAD34055.  
 XX  
 FT Stabilized pharmaceutical composition comprising fibroblast growth  
 FT factor or its variant, and reducing agent to inhibit oxidation of  
 FT fibroblast growth factor, useful for promoting wound healing and  
 FT treating stroke  
 XX  
 PS Disclosure: Page 47-48; 52pp; English.  
 XX  
 CC The invention relates to pharmaceutical composition comprising stabilised  
 CC fibroblast growth factor (FGF) or its variant. Methods for increasing  
 CC storage stability of FGF or its variant in a liquid or lyophilised  
 CC composition is also provided. The method is useful for increasing storage  
 CC stability of a pharmaceutical composition comprising FGF or its variant  
 CC which becomes oxidised during storage. The pharmaceutical composition is  
 CC useful for promoting tissue regeneration, treating wounds, ischemic  
 CC heart diseases, stroke and is used for bone fracture healing. The present  
 CC sequence is bovine FGF-2 partial protein.  
 CC  
 SQ Sequence 146 AA;  
 Query Match 100.0%; Score 787; DB 23; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 6e-78;



Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGGSGAPPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLOAEER 60  
 Db 1 PALPEDGGSGAPPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLOAEER 60  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 120  
 Db 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 120  
 QY 121 TGOYKLGPKTGPQKALFLPMSAKS 146  
 Db 121 TGOYKLGPKTGPQKALFLPMSAKS 146

## RESULT 8

AAU12078  
 ID AAU12078 standard; Protein; 146 AA.

AC AAU12078;

DT 09-APR-2002 (first entry)

DE Bovine fibroblast growth factor-2 (FGF-2).

XX Bovine; peripheral artery disease; PAD; fibroblast growth factor-2;

KW FGF-2; peak walking time; ankle branchial index; body pain;

KM stair climbing ability; claudication; critical limb ischaemia; stroke;

KW cardiovascular disorder; diabetes; dyslipidaemia; hypertension.

OS Bos taurus.

PN WO200198346-A2.

PD 27-DEC-2001.

PF 22-JUN-2001; 2001WO-US19978.

PR 22-JUN-2000; 2000US-213504P.

PR 26-JAN-2001; 2001US-264572P.

PR 16-MAR-2001; 2001US-276549P.

PR 21-JUN-2001; 2001US-0886856.

PA (CHIR ) CHIRON CORP.

PI Whitehouse MJ;

DR WPI; 2002-147794/19.

DR N-PSDB; AAS20933.

PT Treating peripheral artery disease, for improving peak walking time and

PT ankle branchial index with intermittent claudication in a patient.

PT comprises administering fibroblast growth factor in two doses at one

hour interval

PS Claim 11; Fig 2; 99pp; English.

XX The present invention relates to compositions and methods for treating

XX peripheral artery disease. The method comprises administering fibroblast

XX growth factor-2 (FGF-2) to a patient in two doses, where a single dose

XX is administered into each leg of the patient within a one hour period.

XX FGF-2 is useful for treating peripheral artery disease, improving

XX peak walking time with intermittent claudication, improving ankle

XX branchial index with intermittent claudication, reducing body pain,

Sequence 146 AA;

Query Match 100.0%; Score 787; DB 23; Length 146;

Best Local Similarity 100.0%; Pred. No. 6e-78;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGGSGAPPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLOAEER 60  
 Db 1 PALPEDGGSGAPPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLOAEER 60  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 120  
 Db 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 120  
 QY 121 TGOYKLGPKTGPQKALFLPMSAKS 146  
 Db 121 TGOYKLGPKTGPQKALFLPMSAKS 146

## RESULT 9

AAU12078  
 ID AAP80613 standard; protein; 147 AA.

AC AAP80613;

DT 17-SEP-1990 (first entry)

DE Sequence of manufactured bovine basic fibroblast growth factor

(bFGF) for expression in E. coli.

XX Bovine basic fibroblast growth factor (bFGF); wound healing; mitogen;

KW phage vector M3mp18.

OS Bovine.

PN Key Location/Qualifiers

FT MISC-difference 113 /note="changed to Thr"

FT MISC-difference 129 /note="changed to Ser"

PN EP275204-A.

PD 20-JUL-1988.

PF 14-JAN-1988; 88EP-0300303.

PR 03-NOV-1987; 87US-0116430.

PA (AMGE-) AMGEN INC.

PI Banks AR, Fox GM;

DR WPI; 1988-199640-29.

DR N-PSDB; AAN81236.

PT DNA encoding human basic fibroblast growth factor

PT used for expression in an E coli host with purification using

PT non-heparin contg. chromatographic column

PS Example; Fig 2; 21pp; English.

XX The published AA sequence of bovine basic FGF was used as a basis for the

XX synthesis of mfd. bFGF gene for expression in E. coli. The nucleotide

XX sequence of this mfd. gene includes codons most often used by E. coli and

XX the inclusion of convenient restriction sites. Oligonucleotides corresp.

XX to both strands of the gene were synthesized in overlapping sections and

XX assembled into 2 larger sections by hybridization and subsequent ligation.

CC human FGF (see FT). The FGF is a potent mitogen for a wide variety of  
 CC cells of mesodermal origin and may be chemotactic for endothelial cells  
 CC and fibroblasts. The basic FGF induces neovascularisation and may be  
 CC used in accelerating wound healing.

XX Sequence 147 AA;

# Query Match

Best Local Similarity 100.0%; Score 787; DB 9; Length 147;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAER 60  
 DB 2 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAER 61  
 QY 61 GVSISIKVCANRYLAMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 62 GVSISIKVCANRYLAMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYSSWYVALKR 121  
 QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 DB 122 TGOYKLGPKTGPQKAILFLPMSAKS 147

# RESULT 10

AAP90085 standard; protein; 147 AA.

XX AAP90085;

DT 01-NOV-1989 (first entry)

XX Bovine basic fibroblast growth factor.

XX Bovine basic fibroblast growth factor; analogues; heal

KW wounds; tissue generation.

XX Bos taurus.

XX W08904832-A.

XX PD 01-JUN-1989.

XX PF 22-NOV-1988; 88WO-US04189.

XX PR 24-NOV-1987; 87US-0271521.

XX (AMGE) AMGEN INC.

XX Arakawa T, Fox GM;

XX WPI: 1989-178359/24.

XX DR N-PSDB; AAN90034.

XX Stable basic fibroblast growth factor analogues

XX - used to treat wounds and generate tissue and organs.

XX Disclosure; fig 2; 67pp; English.

XX Bovine basic fibroblast growth factor (bFGF), which is

XX converted by modified base features to analogues and to human bFGF

XX CC by site-directed mutagenesis of the DNA encoding it (see AAN90034).

XX Sequence 147 AA;

# Query Match

Best Local Similarity 100.0%; Score 787; DB 10; Length 147;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAER 60  
 DB 2 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAER 61

QY 61 GVSISIKVCANRYLAMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 62 GVSISIKVCANRYLAMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYSSWYVALKR 121  
 QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 DB 122 TGOYKLGPKTGPQKAILFLPMSAKS 147

# RESULT 11

AAP70671 standard; protein; 155 AA.

XX AAP70671;

DT 18-APR-1991 (first entry)

XX Sequence of bovine basic fibroblast growth factor (FGF).

XX Wound healing; tissue repair; tumour probe.

XX Bos taurus.

XX Key Location/Qualifiers

FT Peptide 1..9

XX Protein 10..155

XX W08701728-A.

XX PD 26-MAR-1987.

XX PF 11-SEP-1986; 86WO-US01879.

XX PR 30-MAY-1986; 86US-0869382.

XX PR 12-SEP-1985; 85US-0775521.

XX PR 16-DEC-1985; 85US-0809163.

XX (BIOT-) BIOTECHN RES PARTNE.

XX Flddes JC, Abraham JA;

XX WPI: 1987-093786/13.

XX DR N-PSDB; AAN71024.

XX New DNA sequences encoding mammalian fibroblast growth factors -

XX useful in prodn. of pure factors for use in wound healing and

XX tissue repair and of probe for tumour testing

XX Claim 11; Fig 3; 89pp; English.

XX The N-terminal AA sequence of both acidic and basic bovine FGF are

XX used to construct long probes to screen human and bovine genomic

XX libraries for FGF genes. Isolated sequences are used in vector

XX construction etc. and used to transform CV-1 cells for FGF prodn.

XX Sequence 155 AA;

# Query Match

Best Local Similarity 100.0%; Score 787; DB 8; Length 155;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAER 60  
 DB 10 PALPEDGSGAFPPGHFKDPKRLCYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAER 69  
 QY 61 GVSISIKVCANRYLAMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 70 GVSISIKVCANRYLAMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYSSWYVALKR 129  
 QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
 DB 130 TGOYKLGPKTGPQKAILFLPMSAKS 155

## RESULT 12

AAW20029

ID AAW20029 standard; Protein: 155 AA.

XX AAW20029;

XX 18-SEP-1997 (first entry)

XX Recombinant bovine basic fibroblast growth factor.

XX FGF, fibroblast growth factor; basic; acidic; wound healing;  
 XX neurodegenerative disease; Parkinson's; Alzheimer's disease;  
 XX bone fracture; biologically active; embolism.

XX Bos taurus.

XX Key Location/Qualifiers  
 XX Peptide 1..9  
 XX Protein /label= sig\_peptide  
 XX 10..155  
 XX /label= mat\_protein

XX US604293-A.

XX 18-FEB-1997.

XX 12-SEP-1985; 85US-0775521.

XX 15-MAY-1987; 87US-0050706.

XX 12-SEP-1985; 85US-0775521.

XX 16-DEC-1985; 85US-0809163.

XX 30-MAY-1986; 86US-0869382.

XX 30-MAR-1992; 92US-0860688.

XX 01-APR-1994; 94US-0221462.

XX (SCIO-) SCIOS INC.

XX Abraham JA, Flddes JC;

XX WPI, 1997-234676/21.

XX N-PSDB; AAT71236.

XX Example 5; Fig 3; 34pp; English.

XX AAW20029 is a recombinant bovine basic fibroblast growth factor (bFGF).  
 XX Recombinant bFGF is used to promote healing of wounds, bone fractures,  
 XX damaged myocardial tissue etc. and since it increases neuronal  
 XX survival and promotes neurite outgrowth, may also be used in treatment  
 XX of neurological disorders such as Alzheimer's and Parkinson's diseases.  
 XX bFGF may also be used for detection of specific inhibitors, for  
 XX treatment of cell cultures in vitro before transplant and for inducing  
 XX release of tissue plasminogen activator or collagenase, e.g. for  
 XX treatment of a chronic tendency to form embolism. Recombinant bFGF can  
 XX be produced on a large scale.

XX Sequence 155 AA;

XX Query Match 100.0%; Score 787; DB 18; Length 155;

XX Best Local Similarity 100.0%; Pred. No. 6.5e-78; Indels 0; Gaps 0;

XX Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHRKDKRLCKNGGFFLRTHPDGRVDGVREKSDPHIKILOAEER 60  
 DB 10 PALPEDGSGAFPPGHRKDKRLCKNGGFFLRTHPDGRVDGVREKSDPHIKILOAEER 69  
 QY 61 GVSISIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYTSRKYSRYVALKR 120  
 DB 70 GVSISIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYTSRKYSRYVALKR 129

## RESULT 13

AAE11975

ID AAE11975 standard; Protein: 155 AA.

XX AAE11975;

XX 18-DEC-2001 (first entry)

XX Bovine fibroblast growth factor-2 (FGF-2) #2.

XX Bovine; therapy; erectile dysfunction; fibroblast growth factor-2; FGF-2;  
 XX epidermal growth factor; EGF; platelet derived growth factor; PDGF;  
 XX vascular endothelial growth factor; VEGF; tissue growth factor; TGF;  
 XX impotence; vasotrophic.

XX Bos taurus.

XX WO200168125-A2.

XX 20-SEP-2001.

XX 09-MAR-2001; 2001WO-US07702.

XX 10-MAR-2000; 2000US-188480P.

XX 11-MAY-2000; 2000US-203415P.

XX (CHIR) CHIRON CORP.

XX Whitehouse MJ;

XX WPI, 2001-616273/71.

XX N-PSDB; AAD19522.

XX Treating or preventing erectile dysfunction, comprises administering

XX growth factor, particularly fibroblast growth factor to blood vessels

XX in the penis, groin or leg

XX Claim 6; Page 33; 35pp; English.

XX The present invention relates to a method for treating or preventing  
 XX erectile dysfunction, comprising administering a fibroblast growth  
 XX factor (FGF), epidermal growth factor (EGF), platelet derived growth  
 XX factor (PDGF), vascular endothelial growth factor (VEGF) or tissue  
 XX growth factor (TGF). The invention is used to treat or prevent erectile  
 XX dysfunction, or impotence. The present sequence is a bovine FGF-2  
 XX protein.

XX Sequence 155 AA;

XX Query Match 100.0%; Score 787; DB 22; Length 155;

XX Best Local Similarity 100.0%; Pred. No. 6.5e-78; Indels 0; Gaps 0;

XX Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHRKDKRLCKNGGFFLRTHPDGRVDGVREKSDPHIKILOAEER 60  
 DB 10 PALPEDGSGAFPPGHRKDKRLCKNGGFFLRTHPDGRVDGVREKSDPHIKILOAEER 69  
 QY 61 GVSISIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYTSRKYSRYVALKR 120  
 DB 70 GVSISIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYTSRKYSRYVALKR 129  
 QY 121 TGOYKLGPKTGGOKAILFLPMSAKS 146  
 DB 130 TGOYKLGPKTGGOKAILFLPMSAKS 155

RESULT 14

AAE21686  
ID AAE21686 standard; Protein; 155 AA.  
XX  
AC AAE21686;  
XX  
DT 16-JUL-2002 (first entry)  
XX  
DE Bovine fibroblast growth factor-2 (FGF-2) protein.  
XX  
XX Bovine; pharmaceutical composition; fibroblast growth factor; FGF;  
KW tissue regeneration; therapy; wound; ischemic heart disease; stroke;  
KM bone fracture healing; vulnerability; cerebroprotective; vasotropic.  
XX  
OS Bos taurus.  
XX  
FH Key Location/Qualifiers  
FT Binding-site 27..31  
FT Binding-site /note- "Heparin binding site"  
FT Binding-site 45..48  
FT Binding-site /note- "Cell binding site"  
FT Binding-site 86..90  
FT Binding-site /note- "Cell binding site"  
FT Binding-site 116..120  
FT Binding-site /note- "Heparin binding site"  
XX  
PN WO200217956-A2.  
XX  
PD 07-MAR-2002.  
XX  
PF 31-AUG-2001; 2001WO-US27209.  
XX  
PR 31-AUG-2000; 2000US-229238P.  
XX  
PA (CHIR ) CHIRON CORP.  
XX  
PI Hageman RV, Shirley BA, Bajwa KK;  
XX  
DR WPI; 2002-329732/36.  
XX  
DR N-PSDB; AAD34057.  
XX  
XX Stabilized pharmaceutical composition comprising fibroblast growth  
PT factor or its variant, and reducing agent to inhibit oxidation of  
PT fibroblast growth factor, useful for promoting wound healing and  
PT treating stroke  
XX  
XX  
PS Disclosure; Page 48; 52pp; English.  
XX  
CC The invention relates to pharmaceutical composition comprising stabilised  
CC fibroblast growth factor (FGF) or its variant. Methods for increasing  
CC storage stability of FGF or its variant in a liquid or lyophilised  
CC composition is also provided. The method is useful for increasing storage  
CC stability of a pharmaceutical composition comprising FGF or its variant  
CC which becomes oxidised during storage. The pharmaceutical composition is  
CC useful for promoting tissue regeneration, treating wounds, ischaemic  
CC heart diseases, stroke and is used for bone fracture healing. The present  
CC sequence is bovine FGF-2 protein.  
XX  
SQ Sequence 155 AA;  
Query Match 100.0%; Score 787; DB 23; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6.5e-78;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 130 TGOYKLGPKTGPQKALIFLPMNSAKS 155  
RESULT 15  
AAU12080  
ID AAU12080 standard; Protein; 155 AA.  
XX  
AC AAU12080;  
XX  
DT 09-APR-2002 (first entry)  
XX  
DE Bovine 155 amino acid fibroblast growth factor-2 (FGF-2) protein.  
XX  
XX Bovine; peripheral artery disease; PAD; fibroblast growth factor-2;  
KW FGF-2; peak walking time; ankle brachial index; body pain;  
KW stair climbing ability; claudication; critical limb ischaemia; stroke;  
KM cardiovascular disorder; diabetes; dyslipidaemia; hypertension.  
XX  
OS Bos taurus.  
XX  
PN WO200198346-A2.  
XX  
PD 27-DEC-2001.  
XX  
PF 22-JUN-2001; 2001WO-US19978.  
XX  
PR 22-JUN-2000; 2000US-213504P.  
PR 26-JAN-2001; 2001US-264572P.  
PR 16-MAR-2001; 2001US-276549P.  
PR 21-JUN-2001; 2001US-0886856.  
XX  
PA (CHIR ) CHIRON CORP.  
XX  
PI Whitehouse MJ;  
XX  
DR WPI; 2002-147794/19.  
XX  
DR N-PSDB; AAS20935.  
XX  
XX Treating peripheral artery disease, for improving peak walking time and  
PT ankle brachial index with intermittent claudication in a patient.  
PT comprises administering fibroblast growth factor in two doses at one  
PT hour interval  
XX  
XX  
PS Claim 11; Fig 4; 99pp; English.  
XX  
CC The present invention relates to compositions and methods for treating  
CC peripheral artery disease. The method comprises administering fibroblast  
CC growth factor-2 (FGF-2) to a patient in two doses, where a single dose  
CC is administered into each leg of the patient within a one hour period.  
CC FGF-2 is useful for treating peripheral artery disease, improving  
CC peak walking time with intermittent claudication, improving ankle  
CC brachial index with intermittent claudication, reducing body pain,  
CC improving stair climbing ability and reducing the severity of the  
CC claudication. FGF-2 is also useful for treating or preventing  
CC peripheral artery disease (PAD) including claudication and critical  
CC limb ischaemia, and even those suffering from a wide spectrum of related  
CC clinical ailments including coronary artery disease (CAD), myocardial  
CC infarctions, stroke, diabetes, dyslipidaemias, hypertension and patients  
CC who have had surgical or catheter-based revascularisations. The present  
CC sequence represents bovine 155 amino acid FGF-2 protein.  
XX  
SQ Sequence 155 AA;  
Query Match 100.0%; Score 787; DB 23; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6.5e-78;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Wed Dec 4 15:10:35 2002

us-09-886-856-2.rag

Page 9

Db 70 GVSIGVCANRYLAMKEDGRLLASKCVWDECEFFERLESNNYNTYRSRKYSSWYVALKR 129

QY 121 TGQYKLGPKTGPQKAILFLPMSAKS 146  
|||||  
Db 130 TGQYKLGPKTGPQKAILFLPMSAKS 155

Search completed: December 4, 2002, 11:11:12  
Job time : 34 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:10:08 ; Search time 11.5 Seconds  
(without alignments)  
373.543 Million cell updates/sec

Title: US-09-886-856-2

Perfect score: 787  
Sequence: 1 PALPEDGSGAFPFGHFKDP.....GPKTGPQKALFLPMSAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

Issued\_Patents\_AA: \*  
1: /cgn2\_6/ptodata/1/1aa/5A.COMB.pep: \*  
2: /cgn2\_6/ptodata/1/1aa/5B.COMB.pep: \*  
3: /cgn2\_6/ptodata/1/1aa/6A.COMB.pep: \*  
4: /cgn2\_6/ptodata/1/1aa/6B.COMB.pep: \*  
5: /cgn2\_6/ptodata/1/1aa/PCUTUS.COMB.pep: \*  
6: /cgn2\_6/ptodata/1/1aa/Backfiles1.pep: \*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	787	100.0	146	4	US-09-385-114-2
2	787	100.0	146	4	US-09-417-721-5
3	787	100.0	155	5	PCT-US91-02186-4
4	787	100.0	155	6	5514566-6
5	776	98.6	146	2	US-08-231-894A-11
6	776	98.6	146	4	US-09-417-721-3
7	776	98.6	153	3	US-08-325-186-2
8	776	98.6	154	2	US-08-438-439C-24
9	776	98.6	154	2	US-08-325-186-1
10	776	98.6	154	3	PCT-US91-02186-6
11	776	98.6	155	1	US-07-959-369-6
12	776	98.6	155	1	US-08-023-757-2
13	776	98.6	155	1	US-07-842-177A-1
14	776	98.6	155	1	US-08-177-502-2
15	776	98.6	155	1	US-08-439-725A-10
16	776	98.6	155	1	US-08-325-632-1
17	776	98.6	155	1	US-08-462-169B-10
18	776	98.6	155	2	US-08-867-471-10
19	776	98.6	155	2	US-08-438-439C-14
20	776	98.6	155	2	US-08-951-822-28
21	776	98.6	155	3	US-09-103-079-10
22	776	98.6	155	3	US-08-703-245-6
23	776	98.6	155	3	US-08-897-924A-25
24	776	98.6	155	3	US-08-718-904-11
25	776	98.6	155	3	US-09-023-082A-17
26	776	98.6	155	3	US-09-030-613-3
27	776	98.6	155	4	US-09-098-628-2

28	776	98.6	155	4	US-09-451-905-3	Sequence 3, Appl1
29	776	98.6	155	4	US-09-240-952-4	Sequence 4, Appl1
30	776	98.6	155	4	US-09-368-951-28	Sequence 28, Appl1
31	776	98.6	155	4	US-09-366-009-3	Sequence 9, Appl1
32	776	98.6	155	5	US-09-619-213B-99	Sequence 2, Appl1
33	776	98.6	155	5	PCT-US91-02186-2	Sequence 2, Appl1
34	776	98.6	155	6	5514566-8	Patent No. 5514566
35	776	98.6	158	2	US-08-599-895-3	Sequence 3, Appl1
36	776	98.6	158	3	US-09-211-290-3	Sequence 3, Appl1
37	776	98.6	158	3	US-09-322-676-3	Sequence 3, Appl1
38	776	98.6	158	4	US-09-220-077C-2	Sequence 2, Appl1
39	776	98.6	158	4	US-09-466-036A-3	Sequence 3, Appl1
40	776	98.6	210	1	US-08-464-590A-14	Sequence 14, Appl1
41	776	98.6	210	2	US-08-207-412B-9	Sequence 9, Appl1
42	776	98.6	210	3	US-09-093-585-14	Sequence 14, Appl1
43	776	98.6	235	1	US-08-078-683A-39	Sequence 39, Appl1
44	776	98.6	432	1	US-07-959-369-8	Sequence 8, Appl1
45	776	98.6	432	2	US-08-836-854-20	Sequence 20, Appl1

#### ALIGNMENTS

RESULT 1  
US-09-385-114-2  
Sequence 2, Application US/09385114  
Patent No. 6440934  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF-2 and Method  
FILE REFERENCE: 1296/121690S04  
CURRENT FILING DATE: 1999-08-27  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
PRIOR APPLICATION NUMBER: 60/104,102  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 3  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 2  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Bovis bovinus  
US-09-385-114-2

Query Match  
Best Local Similarity 100.0%; Pred. No. 1.5e-83; Length 146;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPRRLCKNGGFFLIIHPDGRVGVREKSDPHIKLOLAEEER 60  
DB 1 PALPEDGSGAFPFGHFKDPRRLCKNGGFFLIIHPDGRVGVREKSDPHIKLOLAEEER 60

QY 61 GVSISGVCAKRLAKMEGRRLASKCYMDECFEFLRSENNNTYRSRYSWYALKR 120  
DB 61 GVSISGVCAKRLAKMEGRRLASKCYMDECFEFLRSENNNTYRSRYSWYALKR 120

QY 121 TGQYKLGPKTGPQKALFLPMSAKS 146  
DB 121 TGQYKLGPKTGPQKALFLPMSAKS 146

RESULT 2  
US-09-417-721-5  
Sequence 5, Application US/09417721  
Patent No. 6451303  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
APPLICANT: Kavanaugh, Michael W.  
TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF and Method of  
FILE REFERENCE: 1296/121690S05

CURRENT APPLICATION NUMBER: US/09/417,721  
CURRENT FILING DATE: 1999-10-13  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: Patentln Ver. 2.0  
SEQ ID NO 5  
LENGTH: 146  
TYPE: PRT  
ORGANISM: bovine FGF-2  
US-09-417-721-5

Query Match 100.0%; Score 787; DB 4; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.5e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHFKDKPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOLAEEER 60  
DB 1 PALPEDGSGAFPPGHFKDKPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOLAEEER 60

QY 61 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
DB 61 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120

QY 121 TGOYKLGPKTGPQKALIFLPMASAKS 146  
DB 121 TGOYKLGPKTGPQKALIFLPMASAKS 146

RESULT 3  
PCT-US91-02186-4  
Sequence 4, Application PC/TUS9102186  
GENERAL INFORMATION:  
APPLICANT: California Biotechnology Inc.  
APPLICANT: Inventors: Thompson, Stewart A.  
APPLICANT: Abraham, Judith A.  
TITLE OF INVENTION: High Level Expression of Basic  
TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous  
NUMBER OF SEQUENCES: 26  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Irell & Manella  
STREET: 545 Middlefield Road, Suite 200  
CITY: Menlo Park  
STATE: California  
COUNTRY: USA  
ZIP: 94025-3471  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentln Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US91/02186  
FILING DATE: 19910702  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Muraishige, Kate H.  
REGISTRATION NUMBER: 29,959  
REFERENCE/DOCKET NUMBER: 1900-0275.41  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-327-7250  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
PCT-US91-02186-4

Query Match 100.0%; Score 787; DB 5; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.6e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHFKDKPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOLAEEER 60  
DB 10 PALPEDGSGAFPPGHFKDKPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOLAEEER 69

QY 61 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
DB 70 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 129

QY 121 TGOYKLGPKTGPQKALIFLPMASAKS 146  
DB 130 TGOYKLGPKTGPQKALIFLPMASAKS 155

RESULT 4  
5514566-6  
Patent No. 5514566  
TITLE OF INVENTION: METHODS OF PRODUCING RECOMBINANT  
FIBROBLAST GROWTH FACTORS  
NUMBER OF SEQUENCES: 21  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/417,022  
FILING DATE: 05-APR-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 809,163  
FILING DATE: 16-DEC-1985  
APPLICATION NUMBER: 775,521  
FILING DATE: 12-SEP-1985  
SEQ ID NO: 6  
LENGTH: 155  
5514566-6

Query Match 100.0%; Score 787; DB 6; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.6e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHFKDKPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOLAEEER 60  
DB 10 PALPEDGSGAFPPGHFKDKPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOLAEEER 69

QY 61 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
DB 70 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 129

QY 121 TGOYKLGPKTGPQKALIFLPMASAKS 146  
DB 130 TGOYKLGPKTGPQKALIFLPMASAKS 155

RESULT 5  
US-08-231-894A-11  
Sequence 11, Application US/08231894A  
Patent No. 5851990  
GENERAL INFORMATION:  
APPLICANT: FUJISHIMA, AKIRA  
APPLICANT: FUKUDA, TSUNEHICO  
TITLE OF INVENTION: BRGF MUTEIN AND ITS PRODUCTION  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS  
ADDRESSEE: 6 CUSHMAN  
STREET: 130 WATER STREET  
CITY: BOSTON  
STATE: MASSACHUSETTS  
COUNTRY: US  
ZIP: 02109  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FastSeq Version 1.5  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/231,894A  
FILING DATE: 22-APR-1994  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 07/873907  
FILING DATE: 24-APR-1992  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: JP 097655-1991  
FILING DATE: 26-APR-1991  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: JP 066381-1992  
FILING DATE: 24-MAR-1992  
ATTORNEY/AGENT INFORMATION:  
NAME: RESNICK, DAVID S.  
REGISTRATION NUMBER: 34235  
REFERENCE/DOCKET NUMBER: 41769-FWC  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (617) 523-3400  
TELEFAX: (617) 523-6440  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: peptide  
HYPOTHETICAL: NO  
AMTI-SENSE: NO  
FRAGMENT TYPE: Internal  
ORIGINAL SOURCE:  
US-08-231-894A-11

Query Match 98.6%; Score 776; DB 2; Length 146;  
Best Local Similarity 98.6%; Pred. No. 2.7e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLCKNGGFFLRIHPDGRVGVREKSDPHIKLOLAEEER 60  
DB 1 PALPEDGSGAFPFGHFKDPKRLCKNGGFFLRIHPDGRVGVREKSDPHIKLOLAEEER 60

QY 61 GVYSIKGVCANRYLAMKEDGRLLASCKVTDECFEERLESNNYTYRSRKYSSWYALKR 120  
DB 61 GVYSIKGVCANRYLAMKEDGRLLASCKVTDECFEERLESNNYTYRSRKYSSWYALKR 120

QY 121 TGOYKLGSKTGPQOKAILFLPMSAKS 146  
DB 121 TGOYKLGSKTGPQOKAILFLPMSAKS 146

RESULT 6  
US-09-417-721-3  
Sequence 3, Application US/09417721  
Patent No. 6451303  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
APPLICANT: Kavanaugh, Michael W.  
TITLE OF INVENTION: Angiogenetically Effective Unit Dose of FGF and Method of  
FILE REFERENCE: 1296/121690505  
CURRENT APPLICATION NUMBER: US/09/417,721  
CURRENT FILING DATE: 1999-10-13  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 3  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Human FGF-2  
US-09-417-721-3

Query Match 98.6%; Score 776; DB 4; Length 146;

Best Local Similarity 98.6%; Pred. No. 2.7e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLCKNGGFFLRIHPDGRVGVREKSDPHIKLOLAEEER 60  
DB 1 PALPEDGSGAFPFGHFKDPKRLCKNGGFFLRIHPDGRVGVREKSDPHIKLOLAEEER 60

QY 61 GVYSIKGVCANRYLAMKEDGRLLASCKVTDECFEERLESNNYTYRSRKYSSWYALKR 120  
DB 61 GVYSIKGVCANRYLAMKEDGRLLASCKVTDECFEERLESNNYTYRSRKYSSWYALKR 120

QY 121 TGOYKLGSKTGPQOKAILFLPMSAKS 146  
DB 121 TGOYKLGSKTGPQOKAILFLPMSAKS 146

RESULT 7  
US-08-325-186-2  
Sequence 2, Application US/08325186  
Patent No. 6046164  
GENERAL INFORMATION:  
APPLICANT: ASANO, Taiji  
APPLICANT: SUGIMOTO, Hajime  
APPLICANT: TERASHIMA, Akio  
APPLICANT: NAKANO, Yoshiko  
APPLICANT: AMAKAWA, Masahiro  
APPLICANT: SAGA, Katumasa  
TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL  
TITLE OF INVENTION: TISSUE  
NUMBER OF SEQUENCES: 2  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Armstrong, Westernman, Hattori, Mclelland &  
STREET: 1725 K St. N.W. Suite 1000  
CITY: Washington  
STATE: D.C.  
COUNTRY: U.S.A.  
ZIP: 20006  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette, 3.5 in, 1.44MB  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0  
SOFTWARE: ASCII  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/325,186  
FILING DATE: 24-MAY-95  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA: PCT/JP93/01211  
APPLICATION NUMBER: 25-AUG-1993  
FILING DATE: 25-AUG-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Stevens-Smith, Theresa M.  
REGISTRATION NUMBER: 36,281  
REFERENCE/DOCKET NUMBER: 950319  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 659-2930  
TELEFAX: (202) 887-0357  
TELEX: 440142  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 153  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-325-186-2

Query Match 98.6%; Score 776; DB 3; Length 153;  
Best Local Similarity 98.6%; Pred. No. 2.9e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLCKNGGFFLRIHPDGRVGVREKSDPHIKLOLAEEER 60  
DB 8 PALPEDGSGAFPFGHFKDPKRLCKNGGFFLRIHPDGRVGVREKSDPHIKLOLAEEER 67



RESULT 9  
US-08-325-186-1  
; sequence 1, Application US/08325186

RESULT 10  
PCT-US91-02186-6  
; Sequence 6, Application PC/TUS9102186  
; GENERAL INFORMATION:  
; APPLICANT: California Biotechnology Inc.  
; APPLICANT: Inventors: Thompson, Stewart A.  
; APPLICANT: Abraham, Judith A.  
; TITLE OF INVENTION: High Level Expression of Basic  
; TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous

TITLE OF INVENTION: N-terminus  
NUMBER OF SEQUENCES: 26  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Irell & Manella  
STREET: 545 Middlefield Road, Suite 200  
CITY: Menlo Park  
STATE: California  
COUNTRY: USA  
ZIP: 94025-3471  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US91/02186  
FILING DATE: 19910702  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Murashige, Kate H.  
REGISTRATION NUMBER: 29,959  
REFERENCE/DOCKET NUMBER: 1900-0275.41  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-327-7250  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 154 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
PCT-US91-02186-6

Query Match 98.6%; Score 776; DB 5; Length 154;  
Best Local Similarity 98.6%; Pred. No. 2.9e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKRLKCKNGGFELRIHPDGRVDGVREKSDPHIKILOAEER 60  
DB 9 PALPEDGSGAFPFGHFKDKRLKCKNGGFELRIHPDGRVDGVREKSDPHIKILOAEER 68  
QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 120  
DB 69 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 128  
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 11  
US-07-959-369-6  
Sequence 6: Application US/07959369  
Patent No. 5302701  
GENERAL INFORMATION:  
APPLICANT: Hidetaka HASHI et al.  
TITLE OF INVENTION: No. 5302701el Functional Polypeptide  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Wenderoth, Lind & Ponack  
STREET: 805 Fifteenth Street, N.W., #700  
CITY: Washington  
STATE: D.C.  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette, 5.25 inch, 500 kb  
COMPUTER: IBM compatible  
OPERATING SYSTEM: MS-DOS  
SOFTWARE: Wordperfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/959,369  
FILING DATE: 19921013  
CLASSIFICATION: 530

PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Warren M. Cheek, Jr.  
REGISTRATION NUMBER: 33,367  
REFERENCE/DOCKET NUMBER:  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-371-8850  
TELEFAX:  
TELEX:  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: polypeptide  
HYPOTHETICAL:  
ANTI-SENSE:  
FRAGMENT TYPE:  
ORIGINAL SOURCE:  
ORGANISM:  
STRAIN:  
INDIVIDUAL ISOLATE:  
DEVELOPMENTAL STAGE:  
HAPLOTYPE:  
TISSUE TYPE:  
CELL TYPE:  
CELL LINE:  
ORGANELLE:  
IMMEDIATE SOURCE:  
LIBRARY:  
CLONE:  
POSITION IN GENOME:  
CHROMOSOME/SEGMENT:  
MAP POSITION:  
UNITS:  
FEATURE:  
NAME/KEY:  
LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION:  
PUBLICATION INFORMATION:  
AUTHORS:  
TITLE:  
JOURNAL:  
VOLUME:  
ISSUE:  
PAGES:  
DATE:  
DOCUMENT NUMBER:  
FILING DATE:  
PUBLICATION DATE:  
RELEVANT RESIDUES IN SEQ ID NO:  
US-07-959-369-6

Query Match 98.6%; Score 776; DB 1; Length 155;  
Best Local Similarity 98.6%; Pred. No. 3e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKRLKCKNGGFELRIHPDGRVDGVREKSDPHIKILOAEER 60  
DB 10 PALPEDGSGAFPFGHFKDKRLKCKNGGFELRIHPDGRVDGVREKSDPHIKILOAEER 69  
QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 120  
DB 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRKYSSWYVALKR 129  
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
DB 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 12  
US-08-023-757-2  
Sequence 2, Application US/08023757  
Patent No. 5302702  
GENERAL INFORMATION:  
APPLICANT: Seddon Dr., Andrew P.  
APPLICANT: Bohlen Dr., Peter  
APPLICANT: Gluzman Dr., Yakov  
TITLE OF INVENTION: ChimERIC Fibroblast Growth Factors  
NUMBER OF SEQUENCES: 8  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: American Cyanamid Company  
STREET: 1937 West Main Street, P. O. Box 60  
CITY: Stamford,  
STATE: CT  
COUNTRY: USA  
ZIP: 06904-0060  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/023,757  
FILING DATE: 26-FEB-1993  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/07/615,202  
FILING DATE: 23-NOV-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Tsevdos Dr., Estelle J.  
REGISTRATION NUMBER: 31,145  
REFERENCE/DOCKET NUMBER: 31,219-00  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 203-321-2971  
TELEFAX: 203-321-2971  
TELEX: 710-474-4059  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-023-757-2  
Query Match 98.6%; Score 776; DB 1; Length 155;  
Best Local Similarity 98.6%; Pred. No. 3e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSPHIKLOLAER 60  
DB 10 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSPHIKLOLAER 69  
QY 61 GVASTIKGVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYNTYRSRKYTSWYVALKR 120  
DB 70 GVASTIKGVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYNTYRSRKYTSWYVALKR 129  
QY 121 TGQYKLGKRTGPGKAILFLPMSAKS 146  
DB 130 TGQYKLGKRTGPGKAILFLPMSAKS 155

RESULT 13  
US-07-842-177A-1  
Sequence 1, Application US/07842177A  
Patent No. 5348863  
GENERAL INFORMATION:  
APPLICANT: MONSAN, PIERRE  
APPLICANT: PAUL, FRANCOIS  
APPLICANT: BETBEDER, DIDIER  
APPLICANT: SARMIENTOS, PAOLO  
TITLE OF INVENTION: PROCESS FOR THE ENZYMATIC PREPARATION OF  
TITLE OF INVENTION: BASIC FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 6  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCLELLAND, MAIER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Suite 400  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/842,177A  
FILING DATE: 19920402  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: GB 9017008.5  
FILING DATE: 02-AUG-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Oblon, No. 5348863man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-263-0 PCT  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703) 521-4500  
TELEFAX: (703) 486-2347  
TELEX: 248855 OPAT UR  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-07-842-177A-1  
Query Match 98.6%; Score 776; DB 1; Length 155;  
Best Local Similarity 98.6%; Pred. No. 3e-82;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSPHIKLOLAER 60  
DB 10 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSPHIKLOLAER 69  
QY 61 GVASTIKGVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYNTYRSRKYTSWYVALKR 120  
DB 70 GVASTIKGVCANRYLAMKEDGRLASKCVTDCEFFERLESNNYNTYRSRKYTSWYVALKR 129  
QY 121 TGQYKLGKRTGPGKAILFLPMSAKS 146  
DB 130 TGQYKLGKRTGPGKAILFLPMSAKS 155

RESULT 14  
US-08-177-502-2  
Sequence 2, Application US/08177502  
Patent No. 5371206  
GENERAL INFORMATION:  
APPLICANT: Seddon Dr., Andrew P.  
APPLICANT: Bohlen Dr., Peter  
APPLICANT: Gluzman Dr., Yakov  
TITLE OF INVENTION: ChimERIC Fibroblast Growth Factors  
NUMBER OF SEQUENCES: 8  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: American Cyanamid Company  
STREET: 1937 West Main Street, P. O. Box 60  
CITY: Stamford,  
STATE: CT  
COUNTRY: USA  
ZIP: 06904-0060

```
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/177,502
FILING DATE: 05-JAN-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/023,757
FILING DATE: 26-FEB-1993
APPLICATION NUMBER: US/07/615,202
FILING DATE: 23-NOV-1990
ATTORNEY/AGENT INFORMATION:
NAME: Tsavdos Dr., Estelle J.
REGISTRATION NUMBER: 31,145
REFERENCE/DOCKET NUMBER: 31,219-00
TELECOMMUNICATION INFORMATION:
TELEPHONE: 203-321-2756
TELEFAX: 203-321-2971
TELEX: 710-474-4059
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 155 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-177-502-2

Query Match          98.6%; Score 776; DB 1; Length 155;
Best Local Similarity 98.6%; Pred. No. 3e-82;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHRKDKPKRLKCKNGGFLLRHPDGRVDGVREKSDPHIKIQLQAEER 60
   |||||||
DB 10 PALPEDGSGAFPPGHRKDKPKRLKCKNGGFLLRHPDGRVDGVREKSDPHIKIQLQAEER 69
QY 61 GVSISIKGVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNNTYRSRKYSSWYVALKR 120
   |||||||
DB 70 GVSISIKGVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNNTYRSRKYSSWYVALKR 129
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146
   |||||||
DB 130 TGOYKLGPKTGPQKAILFLPMSAKS 155

RESULT 15
US-08-439-725A-10
; Sequence 10, Application US/08439725A
; Patent No. 5693775
; GENERAL INFORMATION:
; APPLICANT: Nathan, Jeremy
; APPLICANT: Smallwood, Philip M.
; APPLICANT: Macke, Jennifer P.
; TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS
; TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE
; NUMBER OF SEQUENCES: 15
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Fish & Richardson P.C.
; STREET: 4225 Executive Square, Suite 1400
; CITY: La Jolla
; STATE: CA
; COUNTRY: USA
; ZIP: 92037
; COMPUTER READABLE FORM:
; MEDIUM TYPE: floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/439,725A
; FILING DATE: 12-MAY-1995
```

```
CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Hallie, Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 07265/047001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 617/678-5070
TELEFAX: 617/678-5099
INFORMATION FOR SEQ ID NO: 10:
SEQUENCE CHARACTERISTICS:
LENGTH: 155 amino acids
TYPE: amino acid
STRANDEDNESS: not relevant
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-439-725A-10

Query Match          98.6%; Score 776; DB 1; Length 155;
Best Local Similarity 98.6%; Pred. No. 3e-82;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPPGHRKDKPKRLKCKNGGFLLRHPDGRVDGVREKSDPHIKIQLQAEER 60
   |||||||
DB 10 PALPEDGSGAFPPGHRKDKPKRLKCKNGGFLLRHPDGRVDGVREKSDPHIKIQLQAEER 69
QY 61 GVSISIKGVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNNTYRSRKYSSWYVALKR 120
   |||||||
DB 70 GVSISIKGVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNNTYRSRKYSSWYVALKR 129
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146
   |||||||
DB 130 TGOYKLGPKTGPQKAILFLPMSAKS 155

Search completed: December 4, 2002, 11:13:39
Job time : 12.5 secs
```

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:09:48 (Search time 7.5 Seconds  
(without alignments)  
316.184 Million cell updates/sec

Title: US-09-886-856-2

Perfect score: 787

Sequence: 1 PALPEDGSGAFPPGHRKDP.....GPKTGPGOKALFLPMSAKS 146

Scoring table: BLOSUM62

Gapop 10.0, Gapext 0.5

Searched: 103943 segs, 16242309 residues

Total number of hits satisfying chosen parameters: 103943

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 08

Maximum Match 1008  
Listing first 45 summaries

Database: Published Applications.AA.\*

1: /cgn2\_6/ptodata/1/pubpaa/US08\_NEW\_PUB.pep.\*  
2: /cgn2\_6/ptodata/1/pubpaa/PT\_NEW\_PUB.pep.\*  
3: /cgn2\_6/ptodata/1/pubpaa/US06\_NEW\_PUB.pep.\*  
4: /cgn2\_6/ptodata/1/pubpaa/US06\_PUBCOMB.pep.\*  
5: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep.\*  
6: /cgn2\_6/ptodata/1/pubpaa/US07\_PUBCOMB.pep.\*  
7: /cgn2\_6/ptodata/1/pubpaa/PC08\_PUBCOMB.pep.\*  
8: /cgn2\_6/ptodata/1/pubpaa/US08\_PUBCOMB.pep.\*  
9: /cgn2\_6/ptodata/1/pubpaa/US09\_NEW\_PUB.pep.\*  
10: /cgn2\_6/ptodata/1/pubpaa/US09\_PUBCOMB.pep.\*  
11: /cgn2\_6/ptodata/1/pubpaa/US10\_NEW\_PUBCOMB.pep.\*  
12: /cgn2\_6/ptodata/1/pubpaa/US10\_PUBCOMB.pep.\*  
13: /cgn2\_6/ptodata/1/pubpaa/US60\_NEW\_PUB.pep.\*  
14: /cgn2\_6/ptodata/1/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	787	100.0	146	9	US-10-131-965-5
2	787	100.0	146	10	US-09-802-365-2
3	787	100.0	146	10	US-09-771-302-2
4	787	100.0	146	10	US-09-886-856-2
5	787	100.0	155	10	US-09-802-365-6
6	787	100.0	155	10	US-09-886-856-6
7	776	98.6	146	9	US-10-131-965-3
8	776	98.6	146	10	US-09-802-365-4
9	776	98.6	146	10	US-09-886-856-4
10	776	98.6	155	10	US-09-822-485-5
11	776	98.6	155	10	US-09-802-365-8
12	776	98.6	155	10	US-09-251-263-10
13	776	98.6	155	10	US-09-425-021-10
14	776	98.6	155	10	US-09-886-856-8
15	776	98.6	155	10	US-09-749-728B-7
16	776	98.6	158	10	US-09-826-210-2
17	776	98.6	159	10	US-09-934-706-2
18	776	98.6	210	10	US-09-902-773A-4
19	776	98.6	501	10	US-09-934-706-4

20	754	95.8	150	12	US-10-016-447-8	Sequence 8, Appl1
21	711	90.3	134	9	US-09-901-938-24	Sequence 24, Appl1
22	395.5	50.3	153	10	US-09-822-485-4	Sequence 4, Appl1
23	395	50.2	141	9	US-09-929-945-7	Sequence 7, Appl1
24	395	50.2	141	10	US-09-929-945-7	Sequence 7, Appl1
25	395	50.2	154	9	US-09-929-945-8	Sequence 8, Appl1
26	395	50.2	155	9	US-09-929-945-8	Sequence 8, Appl1
27	395	50.2	155	10	US-09-284-663A-9	Sequence 9, Appl1
28	395	50.2	155	10	US-09-902-773A-3	Sequence 9, Appl1
29	395	50.2	155	10	US-09-251-263-9	Sequence 9, Appl1
30	395	50.2	155	10	US-09-425-021-9	Sequence 9, Appl1
31	395	50.2	155	10	US-09-929-918-2	Sequence 9, Appl1
32	395	50.2	155	10	US-09-929-918-2	Sequence 9, Appl1
33	388	49.3	137	9	US-09-901-938-23	Sequence 23, Appl1
34	379	48.2	140	9	US-10-131-965-1	Sequence 1, Appl1
35	379	48.2	149	12	US-10-016-447-9	Sequence 9, Appl1
36	375	47.6	135	9	US-09-929-945-5	Sequence 5, Appl1
37	375	47.6	135	10	US-09-929-918-5	Sequence 5, Appl1
38	366	46.5	140	9	US-10-131-965-2	Sequence 2, Appl1
39	341	43.3	158	12	US-10-016-447-18	Sequence 18, Appl1
40	314.5	40.0	155	10	US-09-425-021-24	Sequence 24, Appl1
41	247.5	31.4	206	10	US-09-251-263-13	Sequence 13, Appl1
42	245.5	31.2	205	9	US-10-131-965-8	Sequence 8, Appl1
43	245.5	31.2	206	10	US-09-822-485-7	Sequence 7, Appl1
44	245.5	31.2	206	10	US-09-750-963-9	Sequence 9, Appl1
45	245.5	31.2	206	10	US-09-902-773A-5	Sequence 5, Appl1

## ALIGNMENTS

RESULT 1  
US-10-131-965-5  
Sequence 5, Application US/10131965  
Patent No. US20020165160A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Michael J.  
TITLE OF INVENTION: Angiogenetically Effective Unit Dose of FGF and Method of  
FILE REFERENCE: 1296/121690S05  
CURRENT APPLICATION NUMBER: US/10/131,965  
CURRENT FILING DATE: 2002-04-25  
PRIOR APPLICATION NUMBER: US/09/417,721  
PRIOR FILING DATE: 1999-10-13  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 5  
LENGTH: 146  
TYPE: PRT  
ORGANISM: bovine FGF-2  
US-10-131-965-5  
Query Match 100.0%; Score 787; DB 9; Length 146;  
Best Local Similarity 100.0%; Pred. No. 4.5e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
OY 1 PALPEDGSGAFPPGHRKDPKRLCKNGGFLRLHPDGRVGVREKSDPHIKLOLAER 60  
DB 1 PALPEDGSGAFPPGHRKDPKRLCKNGGFLRLHPDGRVGVREKSDPHIKLOLAER 60  
OY 61 GVSIVKGVCAIRYLAMEDEGLASKVCVTDECFEERLESNNYTSRKYSSVYALKR 120  
DB 61 GVSIVKGVCAIRYLAMEDEGLASKVCVTDECFEERLESNNYTSRKYSSVYALKR 120  
OY 121 TGOYKLGPKTGPGOKALFLPMSAKS 146  
DB 121 TGOYKLGPKTGPGOKALFLPMSAKS 146  
RESULT 2

US-09-802-365-2  
; Sequence 2, Application US/09802365  
; Patent No. US20020032153A1  
; GENERAL INFORMATION:  
; APPLICANT: Whitehouse, Martha Jo  
; TITLE OF INVENTION: Methods and Compositions for the  
; FILE REFERENCE: 1671.003  
; CURRENT APPLICATION NUMBER: US/09/802,365  
; PRIOR FILING DATE: 2001-03-09  
; PRIOR APPLICATION NUMBER: 60/188,480  
; PRIOR FILING DATE: 2000-03-10  
; PRIOR APPLICATION NUMBER: 60/203,415  
; PRIOR FILING DATE: 2000-05-11  
; NUMBER OF SEQ ID NOS: 9  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 146  
; TYPE: PRT  
; ORGANISM: Bos taurus  
US-09-802-365-2

Query Match  
Best Local Similarity 100.0%; Score 787; DB 10; Length 146;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 PALPDDGSSGAFPPGHFDPKRLKCKNGGFLRIHPDGRVGVREKSPHITKLOLAER 60  
Db 1 PALPDDGSSGAFPPGHFDPKRLKCKNGGFLRIHPDGRVGVREKSPHITKLOLAER 60  
Qy 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
Db 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
Qy 121 TGQYKLGPKTGPQKAILFLPMSAKS 146  
Db 121 TGQYKLGPKTGPQKAILFLPMSAKS 146

RESULT 3  
US-09-771-302-2  
; Sequence 2, Application US/09771302  
; Patent No. US20020072489A1  
; GENERAL INFORMATION:  
; APPLICANT: Whitehouse, Martha J  
; TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF-2 and Method  
; FILE REFERENCE: 1296/12169US04  
; CURRENT APPLICATION NUMBER: US/09/771,302  
; PRIOR FILING DATE: 2001-01-26  
; PRIOR APPLICATION NUMBER: 09/385,114  
; PRIOR FILING DATE: 1999-08-27  
; PRIOR APPLICATION NUMBER: 60/104,102  
; PRIOR FILING DATE: 1998-10-13  
; NUMBER OF SEQ ID NOS: 3  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 2  
; LENGTH: 146  
; TYPE: PRT  
; ORGANISM: Bovis bovlnus  
US-09-771-302-2

Query Match  
Best Local Similarity 100.0%; Score 787; DB 10; Length 146;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 PALPDDGSSGAFPPGHFDPKRLKCKNGGFLRIHPDGRVGVREKSPHITKLOLAER 60  
Db 1 PALPDDGSSGAFPPGHFDPKRLKCKNGGFLRIHPDGRVGVREKSPHITKLOLAER 60  
Qy 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
Db 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120

Qy 121 TGQYKLGPKTGPQKAILFLPMSAKS 146  
Db 121 TGQYKLGPKTGPQKAILFLPMSAKS 146

RESULT 4  
US-09-886-856-2  
; Sequence 2, Application US/09886856  
; Patent No. US20020115603A1  
; GENERAL INFORMATION:  
; APPLICANT: Whitehouse, Martha Jo  
; TITLE OF INVENTION: Methods and Compositions for the  
; FILE REFERENCE: P16090.004  
; CURRENT APPLICATION NUMBER: US/09/886,856  
; PRIOR FILING DATE: 2001-06-21  
; PRIOR APPLICATION NUMBER: 60/213,504  
; PRIOR FILING DATE: 2000-06-22  
; PRIOR APPLICATION NUMBER: 60/264,572  
; PRIOR FILING DATE: 2000-01-26  
; PRIOR APPLICATION NUMBER: 60/276,549  
; PRIOR FILING DATE: 2001-03-16  
; NUMBER OF SEQ ID NOS: 9  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 2  
; LENGTH: 146  
; TYPE: PRT  
; ORGANISM: Bos taurus  
US-09-886-856-2

Query Match  
Best Local Similarity 100.0%; Score 787; DB 10; Length 146;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 PALPDDGSSGAFPPGHFDPKRLKCKNGGFLRIHPDGRVGVREKSPHITKLOLAER 60  
Db 1 PALPDDGSSGAFPPGHFDPKRLKCKNGGFLRIHPDGRVGVREKSPHITKLOLAER 60  
Qy 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
Db 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
Qy 121 TGQYKLGPKTGPQKAILFLPMSAKS 146  
Db 121 TGQYKLGPKTGPQKAILFLPMSAKS 146

RESULT 5  
US-09-802-365-6  
; Sequence 6, Application US/09802365  
; Patent No. US20020032153A1  
; GENERAL INFORMATION:  
; APPLICANT: Whitehouse, Martha Jo  
; TITLE OF INVENTION: Methods and Compositions for the  
; FILE REFERENCE: 1671.003  
; CURRENT APPLICATION NUMBER: US/09/802,365  
; PRIOR FILING DATE: 2001-03-09  
; PRIOR APPLICATION NUMBER: 60/188,480  
; PRIOR FILING DATE: 2000-03-10  
; PRIOR APPLICATION NUMBER: 60/203,415  
; PRIOR FILING DATE: 2000-05-11  
; NUMBER OF SEQ ID NOS: 9  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 6  
; LENGTH: 155  
; TYPE: PRT  
; ORGANISM: Bos taurus  
US-09-802-365-6

Query Match  
Best Local Similarity 100.0%; Score 787; DB 10; Length 155;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 60  
 DB 10 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 69  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 129  
 QY 121 TGQYKLGKPTGPGOKAILFLPMSAKS 146  
 DB 130 TGQYKLGKPTGPGOKAILFLPMSAKS 155

## RESULT 6

US-09-886-856-6  
 ; Sequence 6, Application US/09886856  
 ; Patent No. US20020115603A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Whitehouse, Martha Jo  
 ; TITLE OF INVENTION: Methods and Compositions for the  
 ; TITLE OF INVENTION: Treatment of Peripheral Artery Disease  
 ; FILE REFERENCE: PP16030.004  
 ; CURRENT APPLICATION NUMBER: US/09/886, 856  
 ; PRIOR FILING DATE: 2001-06-21  
 ; PRIOR APPLICATION NUMBER: 60/213,504  
 ; PRIOR FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/264,572  
 ; PRIOR FILING DATE: 2000-01-26  
 ; PRIOR APPLICATION NUMBER: 60/276,549  
 ; PRIOR FILING DATE: 2001-03-16  
 ; NUMBER OF SEQ ID NOS: 9  
 ; SOFTWARE: FastSeq for Windows Version 4.0  
 ; SEQ ID NO 6  
 ; LENGTH: 155  
 ; TYPE: PRT  
 ; ORGANISM: Bos taurus  
 US-09-886-856-6

Query Match 100.0%; Score 787; DB 10; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 4.8e-75;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 60  
 DB 10 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 69  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 129  
 QY 121 TGQYKLGKPTGPGOKAILFLPMSAKS 146  
 DB 130 TGQYKLGKPTGPGOKAILFLPMSAKS 155

## RESULT 7

US-10-131-965-3  
 ; Sequence 3, Application US/10131965  
 ; Patent No. US20020165160A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Whitehouse, Martha J.  
 ; APPLICANT: Kavanaugh, Michael W.  
 ; TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF and Method of  
 ; FILE REFERENCE: 1296/12169US05  
 ; CURRENT APPLICATION NUMBER: US/10/131,965  
 ; CURRENT FILING DATE: 2002-04-25  
 ; PRIOR APPLICATION NUMBER: US/09/417,721  
 ; PRIOR FILING DATE: 1999-10-13  
 ; PRIOR APPLICATION NUMBER: 60/104,103  
 ; PRIOR FILING DATE: 1998-10-13

NUMBER OF SEQ ID NOS: 15  
 ; SOFTWARE: PatentIn Ver. 2.0  
 ; SEQ ID NO 3  
 ; LENGTH: 146  
 ; TYPE: PRT  
 ; ORGANISM: Human FGF-2  
 US-10-131-965-3

Query Match 98.6%; Score 776; DB 9; Length 146;  
 Best Local Similarity 98.6%; Pred. No. 6.3e-74;  
 Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 60  
 DB 1 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 60  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 QY 121 TGQYKLGKPTGPGOKAILFLPMSAKS 146  
 DB 121 TGQYKLGKPTGPGOKAILFLPMSAKS 146

## RESULT 8

US-09-802-365-4  
 ; Sequence 4, Application US/09802365  
 ; Patent No. US20020032153A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Whitehouse, Martha Jo  
 ; TITLE OF INVENTION: Methods and Compositions for the  
 ; TITLE OF INVENTION: Treatment and Prevention of Erectile Dysfunction  
 ; FILE REFERENCE: 1671.003  
 ; CURRENT APPLICATION NUMBER: US/09/802,365  
 ; PRIOR FILING DATE: 2001-03-09  
 ; PRIOR APPLICATION NUMBER: 60/188,480  
 ; PRIOR FILING DATE: 2000-03-10  
 ; PRIOR APPLICATION NUMBER: 60/203,415  
 ; PRIOR FILING DATE: 2000-05-11  
 ; NUMBER OF SEQ ID NOS: 9  
 ; SOFTWARE: FastSeq for Windows Version 4.0  
 ; SEQ ID NO 4  
 ; LENGTH: 146  
 ; TYPE: PRT  
 ; ORGANISM: Homo sapiens  
 US-09-802-365-4

Query Match 98.6%; Score 776; DB 10; Length 146;  
 Best Local Similarity 98.6%; Pred. No. 6.3e-74;  
 Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 60  
 DB 1 PALPEDGGGGAFFPGHFKDPKRLKCKNGGFLLRIHPDGRVGVREKSDPHIKLOLAER 60  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 DB 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 QY 121 TGQYKLGKPTGPGOKAILFLPMSAKS 146  
 DB 121 TGQYKLGKPTGPGOKAILFLPMSAKS 146

## RESULT 9

US-09-886-856-4  
 ; Sequence 4, Application US/09886856  
 ; Patent No. US20020115603A1  
 ; GENERAL INFORMATION:  
 ; APPLICANT: Whitehouse, Martha Jo  
 ; TITLE OF INVENTION: Methods and Compositions for the  
 ; TITLE OF INVENTION: Treatment of Peripheral Artery Disease

FILE REFERENCE: P16090.004  
CURRENT APPLICATION NUMBER: US/09/886,856  
CURRENT FILING DATE: 2001-06-21  
PRIOR APPLICATION NUMBER: 60/213,504  
PRIOR FILING DATE: 2000-06-22  
PRIOR APPLICATION NUMBER: 60/264,572  
PRIOR FILING DATE: 2000-01-26  
PRIOR APPLICATION NUMBER: 60/276,549  
PRIOR FILING DATE: 2001-03-16  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 4  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-886-856-4

Query Match 98.6%; Score 776; DB 10; Length 146;  
Best Local Similarity 98.6%; Pred. No. 6.7e-74;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 60  
DB 1 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 60  
QY 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECEFFERLESNNNTYRSRKYSSWYVALKR 120  
DB 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECEFFERLESNNNTYRSRKYSSWYVALKR 120  
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
DB 121 TGOYKLGSKTGPQKAILFLPMSAKS 146

RESULT 10  
US-09-822-485-5  
Sequence 5, Application US/09822485  
Patent No. US2002001825A1  
GENERAL INFORMATION:  
APPLICANT: Itch, No. US20020001825A1uyuki  
TITLE OF INVENTION: No. US20020001825A1el Fibroblast Growth Factor-Like Polypeptides  
FILE REFERENCE: 08035.0001-01000  
CURRENT APPLICATION NUMBER: US/09/822,485  
CURRENT FILING DATE: 2001-04-02  
NUMBER OF SEQ ID NOS: 35  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 5  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
PUBLICATION INFORMATION:  
JOURNAL: EMBO J.  
VOLUME: 5  
PAGES: 2523-2528  
DATE: 1986  
US-09-822-485-5

Query Match 98.6%; Score 776; DB 10; Length 155;  
Best Local Similarity 98.6%; Pred. No. 6.7e-74;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 60  
DB 10 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 69  
QY 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECEFFERLESNNNTYRSRKYSSWYVALKR 120  
DB 70 GVSISIKVCANRYLAMKEDGRLASKCVTDECEFFERLESNNNTYRSRKYSSWYVALKR 129  
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
DB 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 11  
US-09-802-365-8  
Sequence 8, Application US/09802365  
Patent No. US20020032153A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the Treatment and Prevention of Erectile Dysfunction  
FILE REFERENCE: 1671.003  
CURRENT APPLICATION NUMBER: US/09/802,365  
CURRENT FILING DATE: 2001-03-09  
PRIOR APPLICATION NUMBER: 60/188,480  
PRIOR FILING DATE: 2000-03-10  
PRIOR APPLICATION NUMBER: 60/203,415  
PRIOR FILING DATE: 2000-05-11  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 8  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-802-365-8

Query Match 98.6%; Score 776; DB 10; Length 155;  
Best Local Similarity 98.6%; Pred. No. 6.7e-74;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 60  
DB 10 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 69  
QY 61 GVSISIKVCANRYLAMKEDGRLASKCVTDECEFFERLESNNNTYRSRKYSSWYVALKR 120  
DB 70 GVSISIKVCANRYLAMKEDGRLASKCVTDECEFFERLESNNNTYRSRKYSSWYVALKR 129  
QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146  
DB 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 12  
US-09-251-263-10  
Sequence 10, Application US/09251263  
Patent No. US20020052477A1  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
FILE REFERENCE: 07265/047003  
CURRENT APPLICATION NUMBER: US/09/251,263  
CURRENT FILING DATE: 1999-02-16  
EARLIER APPLICATION NUMBER: 08/867,471  
EARLIER FILING DATE: 1997-06-02  
EARLIER APPLICATION NUMBER: 08/439,725  
EARLIER FILING DATE: 1995-05-12  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 10  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-251-263-10

Query Match 98.6%; Score 776; DB 10; Length 155;  
Best Local Similarity 98.6%; Pred. No. 6.7e-74;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 60  
DB 10 PALPEDGSGAFPFGHKKDKRLKCKNGGFFLRHDPGRVDGYREKSDPHIKIQLQAEER 69



```
QY 61 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 120
DB 70 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 129
QY 121 TGQYKLGPKTGPQOKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQOKAILFLPMSAKS 155

RESULT 13
US-09-425-021-10
; Sequence 10, Application US/09425021
; Patent No. US20020076748A1
; GENERAL INFORMATION:
; APPLICANT: Greene, John M.
; APPLICANT: Rosen, Craig A.
; TITLE OF INVENTION: Fibroblast Growth Factor 15
; FILE REFERENCE: PF203D1
; CURRENT APPLICATION NUMBER: US/09/425,021
; CURRENT FILING DATE: 1999-10-25
; EARLIER APPLICATION NUMBER: 09/103,079
; EARLIER FILING DATE: 1998-06-23
; NUMBER OF SEQ ID NOS: 32
; SOFTWARE: Patent Ver. 2.0
; SEQ ID NO 10
; LENGTH: 155
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-425-021-10

Query Match 98.6%; Score 776; DB 10; Length 155;
Best Local Similarity 98.6%; Pred. No. 6.7e-74;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 60
DB 10 PALPEDGSGAFPFGHFKDKPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 69
QY 61 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 120
DB 70 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 129
QY 121 TGQYKLGPKTGPQOKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQOKAILFLPMSAKS 155

RESULT 14
US-09-886-856-8
; Sequence 8, Application US/09886856
; Patent No. US20020115603A1
; GENERAL INFORMATION:
; APPLICANT: Whitehouse, Martha Jo
; TITLE OF INVENTION: Methods and Compositions for the
; FILE REFERENCE: PPI6090.004
; CURRENT APPLICATION NUMBER: US/09/886,856
; CURRENT FILING DATE: 2001-06-21
; PRIOR APPLICATION NUMBER: 60/213,504
; PRIOR FILING DATE: 2000-06-22
; PRIOR APPLICATION NUMBER: 60/264,572
; PRIOR FILING DATE: 2000-01-26
; PRIOR APPLICATION NUMBER: 60/276,549
; PRIOR FILING DATE: 2001-03-16
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 8
; LENGTH: 155
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-886-856-8
```

```
Query Match 98.6%; Score 776; DB 10; Length 155;
Best Local Similarity 98.6%; Pred. No. 6.7e-74;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 60
DB 10 PALPEDGSGAFPFGHFKDKPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 69
QY 61 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 120
DB 70 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 129
QY 121 TGQYKLGPKTGPQOKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQOKAILFLPMSAKS 155

RESULT 15
US-09-749-728B-7
; Sequence 7, Application US/09749728B
; Patent No. US20020142457A1
; GENERAL INFORMATION:
; APPLICANT: Umezawa, Akihito
; APPLICANT: Hata, Jun-ichi
; APPLICANT: Ogawa, Keiichi
; APPLICANT: Sakurada, Kazuhiko
; APPLICANT: Gojo, Satoshi
; APPLICANT: Yamada, Yoji
; TITLE OF INVENTION: THE CELL HAVING THE POTENTIALITY OF DIFFERENTIATION INFO CARD
; FILE REFERENCE: 00766.000043
; CURRENT APPLICATION NUMBER: US/09/749,728B
; CURRENT FILING DATE: 2001-09-17
; PRIOR APPLICATION NUMBER: H11-372826
; PRIOR FILING DATE: 1999-12-28
; PRIOR APPLICATION NUMBER: PCT-JP00-01148
; PRIOR FILING DATE: 2000-02-28
; PRIOR APPLICATION NUMBER: PCT-JP00-07741
; PRIOR FILING DATE: 2000-11-02
; NUMBER OF SEQ ID NOS: 80
; SOFTWARE: Patent Ver. 2.0
; SEQ ID NO 7
; LENGTH: 155
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-749-728B-7

Query Match 98.6%; Score 776; DB 10; Length 155;
Best Local Similarity 98.6%; Pred. No. 6.7e-74;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDKPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 60
DB 10 PALPEDGSGAFPFGHFKDKPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 69
QY 61 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 120
DB 70 GVSISIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNYTSRKYSWYVALKR 129
QY 121 TGQYKLGPKTGPQOKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQOKAILFLPMSAKS 155

Search completed: December 4, 2002, 11:13:09
Job time : 8.5 secs
```

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:09:23 : Search time 14.5 Seconds  
(without alignments)  
967.974 Million cell updates/sec

Title: US-09-886-856-2

Perfect score: 787

Sequence: 1 PALPDDGGSGAFPPGHFKDP.....GPKTGPCKALLFLPMASKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :  
1: pir1:\*  
2: pir2:\*  
3: pir3:\*  
4: pir4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	787	100.0	157	1 GKBOB	basic fibroblast g
2	781	99.2	146	1 S00185	basic fibroblast g
3	776	98.6	210	2 A32398	basic fibroblast g
4	759.5	96.5	154	2 A31674	basic fibroblast g
5	754.5	95.9	154	2 C37360	basic fibroblast g
6	736	93.5	137	2 I46711	fibroblast growth
7	734	93.3	189	2 A48834	basic fibroblast g
8	717.5	91.2	164	2 A31622	basic fibroblast g
9	644	81.8	155	1 A40117	basic fibroblast g
10	425.5	51.5	125	2 A32484	basic fibroblast g
11	405	51.5	155	1 A60721	acidic fibroblast
12	395	50.2	155	1 A33665	acidic fibroblast
13	392.5	49.9	155	2 A60130	acidic fibroblast
14	391	49.7	155	2 S04147	acidic fibroblast
15	391	49.7	155	2 D37360	acidic fibroblast
16	389	49.4	152	2 JH0476	acidic fibroblast
17	387	49.2	155	2 JH0055	acidic fibroblast
18	384	48.8	153	1 GKBOA	acidic fibroblast
19	252	32.0	194	2 I50710	fibroblast growth
20	251.5	32.0	256	2 J04627	fibroblast growth
21	249.5	31.7	264	2 A36207	fibroblast growth
22	249.5	31.7	266	2 S68144	fibroblast growth
23	246	31.3	220	2 I50588	fibroblast growth
24	245.5	31.2	206	1 TVH058	fibroblast growth
25	245	31.1	208	2 S20102	fibroblast growth
26	245	31.1	208	2 S20102	fibroblast growth
27	242.5	30.8	206	2 J04268	fibroblast growth
28	241	30.6	267	1 TVH055	fibroblast growth
29	236	30.0	187	2 S23595	embryonic fibrobla

30	235.5	29.9	237	1 S39582	transforming prote
31	235	29.9	245	1 TVMST2	transforming prote
32	234	29.7	239	1 S04742	fibroblast growth
33	232.5	29.5	202	1 TVM5HS	fibroblast growth
34	231.5	29.4	192	2 S54407	embryonic fibrobla
35	215	27.3	208	2 S66486	fibroblast growth
36	215	27.3	208	2 A48137	fibroblast growth
37	209	26.6	211	2 J07353	fibroblast growth
38	207	26.3	208	2 J07082	fibroblast somatoc
39	206.5	26.2	207	2 J05940	fibroblast growth
40	205.5	26.1	207	2 J05941	fibroblast growth
41	204.5	26.0	194	2 I48610	keratinocyte growt
42	203	25.8	212	2 J07511	fibroblast growth
43	202.5	25.7	194	1 A36301	fibroblast growth
44	202.5	25.7	194	2 S26049	fibroblast growth
45	202.5	25.7	194	2 S49501	keratinocyte growt

#### ALIGNMENTS

RESULT 1  
GKBOB  
basic fibroblast growth factor precursor - bovine (fragment)  
N:Alternate names: bFGF; kidney-derived growth factor; prostatiotin  
C:Species: Bos primigenius taurus (cattle)  
C>Date: 13-Aug-1986 #sequence\_revision 02-Jun-1995 #text\_change 24-Nov-1999  
C:Accession: A24663; A32878; A33784; A61550; A60310; A61094; A01386; A60316;  
R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedland, J.; Hjertild, K.A.; Science 233, 545-548, 1986  
A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor  
A:Reference number: A94290; MUID:86261806; PMID:2425435  
A:Accession: A24663  
A:Molecule type: mRNA  
A:Residues: 3-157 <AB2>  
A:Cross-references: GB:M13440; NID:q163049; PIDN:AAA30518.1; PID:q163050  
R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Stiegel, N.R.; Deuel, T.F. Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989  
A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: puri  
A:Reference number: A33784; MUID:90121211; PMID:2610682  
A:Accession: A33784  
A:Molecule type: protein  
A:Residues: 1-14 <M14>  
A:Note: demonstration of a possible alternative initiator or splice junction  
R:Berthoin, J.; Hearn, M.T.W. Mol. Cell. Endocrinol. 51, 187-199, 1987  
A:Title: Isolation, characterization and tissue localisation of an N-terminal-trunca  
A:Reference number: A61550; MUID:87247652; PMID:3556000  
A:Accession: A61550  
A:Molecule type: protein  
A:Residues: 16-35 <BER>  
R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R. Mol. Cell. Endocrinol. 49, 189-194, 1987  
A:Title: Isolation and partial characterization of basic fibroblast growth factor fr  
A:Reference number: A61551; MUID:87162836; PMID:3556754  
A:Accession: A61551  
A:Molecule type: protein  
A:Residues: 27-35, 'X', '37-41 <UE3>  
A:Experimental source: testes  
A:Note: this form appears to be identical to the renal form  
R:Ueno, N.; Baird, A.; Esch, F.; Shimazaki, S.; Ling, N.; Guillemin, R. Regul. Pept. 16, 135-145, 1986  
A:Title: Purification and partial characterization of a mitogenic factor from bovine  
A:Reference number: A60310; MUID:87119165; PMID:3809608  
A:Accession: A60310

A: Molecule type: protein  
 A: Residues: 23-35, 'X', 37-42 <DEN>  
 A: Experimental source: liver  
 R: Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986  
 A: Title: Isolation of an amino terminal extended form of basic fibroblast growth factor  
 A: Reference number: A24819; MUID:66295737; PMID:3741423  
 A: Contents: annotation  
 A: Note: the amino end of this form was blocked; the peptide composition matched what was  
 R: Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.  
 Endocrinology 118, 82-90, 1986  
 A: Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical  
 A: Reference number: A61094; MUID:66081530; PMID:3940857  
 A: Accession: A61094  
 A: Molecule type: protein  
 A: Residues: 12-25, 27-35, 'X', 37-40 <GOS>  
 A: Experimental source: adrenal gland  
 R: Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hall, F.; Denoroy, L.; Klepper, R.; Gospodarowicz, D.  
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985  
 A: Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and  
 A: Reference number: A01386; MUID:86016731; PMID:3863109  
 A: Accession: A01386  
 A: Molecule type: protein  
 A: Residues: 12-157 <ESC>  
 A: Experimental source: pituitary gland  
 R: Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.  
 Regul. Pept. 12, 201-213, 1985  
 A: Title: Isolation and partial characterization of an endothelial cell growth factor frc  
 A: Reference number: A60316; MUID:86095426; PMID:4081126  
 A: Accession: A60316  
 A: Molecule type: protein  
 A: Residues: 27-35, 'X', 37-43 <BAI>  
 A: Experimental source: kidney  
 R: Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.  
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984  
 A: Title: Isolation and partial molecular characterization of pituitary fibroblast growth  
 A: Reference number: A22054; MUID:84296139; PMID:6591194  
 A: Accession: A22054  
 A: Molecule type: protein  
 A: Residues: 12-26 <BOH>  
 C: Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell  
 cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating t  
 C: Comment: This protein binds heparin more strongly than does aFGF.  
 C: Superfamily: fibroblast growth factor  
 C: Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari  
 F: 1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MAT1>  
 F: 4-157/Product: basic fibroblast growth factor, pituitary gamma form #status experiment  
 F: 12-157/Product: basic fibroblast growth factor, pituitary alpha form #status experiment  
 F: 16-157/Product: basic fibroblast growth factor, pituitary short form #status predicted  
 F: 23-157/Product: basic fibroblast growth factor, hepatic form #status experimental <MAT  
 F: 27-157/Product: basic fibroblast growth factor, renal form #status experimental <MAT  
 F: 29-33, 118-121/Region: heparin binding #status predicted  
 F: 4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

Query Match 100.0%; Score 787; DB 1; Length 157;  
 Best Local Similarity 100.0%; Pred. NO. 3, 3e-71;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 1 PALPDGSGAFPPGHFDPKRLTYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 60  
 |||||||  
 Db 12 PALPDGSGAFPPGHFDPKRLTYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 71  
 Oy 61 GVVISIKVCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 |||||||  
 Db 72 GVVISIKVCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 131  
 Oy 121 TGQYKLGPKTGPQKALIFLPMASAKS 146  
 |||||||  
 Db 132 TGQYKLGPKTGPQKALIFLPMASAKS 157

RESULT 2  
 S02185

basic fibroblast growth factor - sheep  
 N: Alternate names: prostactropin  
 C: Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C: Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 R: Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabrl, L.J.; Nice, E.C.; Rubbra, M.R.; Bu  
 FEBS Lett. 224, 128-132, 1987  
 A: Title: Primary structure of ovine pituitary basic fibroblast growth factor.  
 A: Reference number: S00185; MUID:88055577; PMID:3678486  
 A: Accession: S00185  
 A: Molecule type: protein  
 A: Residues: 1-146 <STM>  
 C: Superfamily: fibroblast growth factor  
 C: Keywords: growth factor; heparin binding; mitogen  
 F: 18-22/Region: heparin binding #status predicted  
 F: 107-110/Region: heparin binding #status predicted

Query Match 99.2%; Score 781; DB 1; Length 146;  
 Best Local Similarity 99.3%; Pred. NO. 1, 2e-70;  
 Matches 145; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

Oy 1 PALPDGSGAFPPGHFDPKRLTYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 60  
 |||||||  
 Db 1 PALPDGSGAFPPGHFDPKRLTYCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 60  
 Oy 61 GVVISIKVCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 |||||||  
 Db 61 GVVISIKVCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKR 120  
 Oy 121 TGQYKLGPKTGPQKALIFLPMASAKS 146  
 |||||||  
 Db 121 TGQYKLGPKTGPQKALIFLPMASAKS 146

# RESULT 3

basic fibroblast growth factor precursor, 22.5K form - human  
 N: Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prostat  
 C: Contains: basic fibroblast growth factor, 18K form  
 C: Species: Homo sapiens (man)  
 C: Date: 31-Jul-1999 #sequence\_revision 31-Dec-1993 #text\_change 21-Jul-2000  
 C: Accession: A32398; A61537; A26642; B32878; S00297; A54316; A33624; A25824;  
 R: Plets, H.; Kaghad, M.; Plets, A.C.; Klagesbun, M.; Lellis, J.M.; Lianzun, P.; Chalo  
 Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989  
 A: Title: High molecular mass forms of basic fibroblast growth factor are initiated by  
 A: Reference number: A32398; MUID:89184522; PMID:2538817  
 A: Accession: A32398  
 A: Molecule type: mRNA  
 A: Residues: 1-210 <PRA>  
 A: Cross-references: GB:004513; NID:g183083; PIDN:AAA52531.1; PID:g459811  
 R: Shibata, F.; Baird, A.; Florjalewicz, R. Z.  
 Growth Factors 4, 277-287, 1991  
 A: Title: Functional characterization of the human basic fibroblast growth factor gene  
 A: Reference number: A61537; MUID:92110035; PMID:1764264  
 A: Accession: A61537  
 A: Molecule type: DNA  
 A: Residues: 1-114 <SHI>  
 A: Note: authors translated the codon GGA for residue 47 as Ala  
 R: Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.  
 FEBS Lett. 213, 189-194, 1987  
 A: Title: Cloning and expression of cDNA encoding human basic fibroblast growth factor  
 A: Reference number: A26642; MUID:87162468; PMID:2435575  
 A: Accession: A26642  
 A: Molecule type: mRNA  
 A: Residues: 56-210 <CUR>  
 A: Cross-references: GB:M27968; NID:g182562; PIDN:AAA52448.1; PID:g182563  
 R: Abraham, J.A.; Whang, J.L.; Tumolo, A.; Megata, A.; Fildes, J.C.  
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986  
 A: Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organizat  
 A: Reference number: A90924; MUID:87217066; PMID:3472745  
 A: Accession: B32878  
 A: Molecule type: mRNA  
 A: Residues: 56-210 <ABR>

A>Note: the authors translated the codon GAA for residue 108 as Gly  
 R.Abraham, J.A.; Wang, J.L.; Tumbolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; F  
 EMO J. 5, 2523-2528, 1986  
 A>Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organizat  
 A:Reference number: S00297; MUID:87053817; PMID:3780670  
 A:Accession: S00297  
 A>Status: not compared with conceptual translation  
 A:Molecule type: DNA  
 A:Residues: 1-155 <AB2>  
 A>Note: the authors translated the codon GAA for residue 108 as Gly  
 R.Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.  
 Jpn. J. Cancer Res. 82, 1263-1270, 1991  
 A>Title: Characterization of high-molecular-mass forms of basic fibroblast growth factor  
 reogenesis.  
 A:Reference number: A54316; MUID:92091228; PMID:1721615  
 A:Accession: A54316  
 A:Molecule type: Protein  
 A:Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>  
 A:Experimental source: C-1121 hepatocellular carcinoma cell line  
 A>Note: sequence extracted from NCBI backbone (NCBI:P71595)  
 A:Accession: B54316  
 A:Molecule type: Protein  
 A:Residues: 'XXX', 19, 'X', 21-29 <SH2>  
 A>Note: sequence extracted from NCBI backbone (NCBI:P71594)  
 R.Felge, J.D.; Bradley, J.D.; Fryburg, K.; Farris, J.; Consens, L.C.; Barr, P.J.; Baird,  
 J. Cell Biol. 109, 3105-3114, 1989  
 A>Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylated  
 A:Reference number: A33624; MUID:90078343; PMID:2592418  
 A:Accession: A33624  
 A>Status: preliminary  
 A:Molecule type: Protein  
 A:Residues: 57-77 <STO>  
 R.Story, M.T.; Esch, F.; Shimasaki, S.; Sasase, J.; Jacobs, S.C.; Lawson, R.K.  
 Biochem. Biophys. Res. Commun. 142, 702-709, 1987  
 A>Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate  
 A:Reference number: A25824; MUID:87156686; PMID:2435284  
 A:Accession: A25824  
 A:Molecule type: Protein  
 A:Residues: 57-77 <STO>  
 R.Experimental source: prostate  
 R.Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986  
 A>Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal  
 A:Reference number: A90122; MUID:86186784; PMID:3964259  
 A:Accession: B24243  
 A:Molecule type: Protein  
 A:Residues: 65-102, 'X', 104-105 <GIM>  
 R.Experimental source: brain  
 R.Gautschi, P.; Frater-Schroder, M.; Bohlen, P.  
 FEBS Lett. 204, 203-207, 1986  
 A>Title: Partial molecular characterization of endothelial cell mitogens from human brai  
 A:Reference number: A91364; MUID:86255260; PMID:3732516  
 A:Accession: B24301  
 A:Molecule type: Protein  
 A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAV>  
 R.Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.  
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
 A>Title: A form of human basic fibroblast growth factor with an extended amino terminus.  
 A:Reference number: S42242; MUID:87213258; PMID:3579930  
 A:Accession: S42242  
 A>Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 54-210 <SOM>  
 A:Cross-references: EMBL:M17599; NID:q183086; PIDN:AAA52534.1; PID:q183087  
 R.Panico, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D  
 Biochemistry 33, 10229-10248, 1994  
 A>Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor  
 A:Reference number: A55784; MUID:94347757; PMID:7520751  
 A:Accession: B55784  
 A:Molecule type: Protein  
 A:Residues: 54-71 <PAN>  
 R.Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.  
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992

A>Title: Reverse transcription with nested polymerase chain reaction shows expression  
 of human basic fibroblast growth factor precursor - rat  
 A:Reference number: 152267; MUID:93038590; PMID:1417798  
 A:Accession: 152267  
 A>Status: preliminary; translated from GB/EMBL/DBJ  
 A:Molecule type: mRNA  
 A:Residues: 95-182 <RBS>  
 A:Cross-references: GB:S47380; NID:q256535; PIDN:AAU13653.1; PID:q4261553  
 R.Experimental source: granulosa cells  
 R.Patry, V.; Bugler, B.; Amalric, F.; Prone, J.C.; Prats, H.  
 FEBS Lett. 349, 23-28, 1994  
 A>Title: Purification and characterization of the 210-amino acid recombinant basic fi  
 A:Reference number: S46253; MUID:94320639; PMID:8045296  
 A:Accession: S46253  
 A:Molecule type: Protein  
 A:Residues: 39-53; 65-88 <PAT>  
 A>Note: recombinant gene expressed in Escherichia coli  
 C:Genetics:  
 A:Gene: GDB:FGF2; FGFR  
 A:Cross-references: GDB:119910; OMIM:134920  
 A:Map position: 4q25-4q27  
 A:Start codon: CAG  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mit  
 F.1-210/Product: basic fibroblast growth factor, 22.5K form #status predicted <MA2>  
 F.65-210/Product: basic fibroblast growth factor, 18K form #status predicted <MA2>  
 F.171-174/Region: heparin binding #status predicted  
 F.171-174/Region: heparin binding #status predicted

Query Match 98.6%; Score 776; DB 2; Length 210;  
 Best Local Similarity 98.6%; Pred. No. 5, 8e-70;  
 Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAAPPFGHFKPKRLKCKNGGFLLRHDPGRVGVREKSDPHIKLOAER 60  
 DB 65 PALPEDGSGAAPPFGHFKPKRLKCKNGGFLLRHDPGRVGVREKSDPHIKLOAER 124

QY 61 GVSIVKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYTRSKYSWYALKR 120  
 DB 125 GVSIVKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYTRSKYSWYALKR 184

QY 121 TGGYKRGKPTGPGQKAILPLMSAKS 146  
 DB 185 TGGYKRGKPTGPGQKAILPLMSAKS 210

RESULT 4  
 A31674  
 Basic fibroblast growth factor precursor - rat  
 N:Alternate names: bFGF  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 21-May-1990 #sequence-revision 21-May-1990 #text-change 16-Jul-1999  
 C:Accession: A31674; S00876; S24309  
 R.Shimazaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooke, K.; Baird, J  
 Biochem. Biophys. Res. Commun. 137, 256-263, 1988  
 A>Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast gr  
 A:Reference number: A31674; MUID:89061721; PMID:3196337  
 A:Accession: A31674  
 A:Molecule type: mRNA  
 A:Residues: 1-154 <SH1>  
 A:Cross-references: GB:M22427; NID:q204285; PIDN:AAA11210.1; PID:q204286  
 R.Kurokawa, T.; Seno, M.; Igarashi, K.  
 Nucleic Acids Res. 16, 5201, 1988  
 A>Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.  
 A:Reference number: S00876; MUID:88262516; PMID:3387229  
 A:Accession: S00876  
 A:Molecule type: mRNA  
 A:Residues: 1-154 <KUR>  
 A:Cross-references: EMBL:X07285; NID:q56203; PIDN:CAA30265.1; PID:q56204  
 R.El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.  
 Biochim. Biophys. Acta 1131, 314-316, 1992  
 A>Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA c  
 A:Reference number: S24309; MUID:92329546; PMID:1378302



submitted to the EMBL Data Library, September 1992

A:Description: Characterization of cDNA encoding basic fibroblast growth factor of the

A:Reference number: S31622

A:Accession: S31622

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-164 <KUS>

A:Cross-references: EMBL:215154

C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 92.5%; Score 717.5; DB 2; Length 164;

Matches 136; Conservative 4; Mismatches 6; Indels 1; Gaps 1;

1 PALPED-GSGAPPPGHPKDKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEE 59

18 PALSGGGGCGAPPPGHPKDKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEE 77

60 RGVVSIKVCANRYLAMKEDGRLLAKYVTECEFFERLESNNYTRSKYSSWYVALK 119

78 RGVVSIKVCANRYLAMKEDGRLLAKYVTECEFFERLESNNYTRSKYSSWYVALK 137

120 RTGQYKLGPKTGPQKALFLPMSAKS 146

138 RTGQYKLGSKTGPQKALFLPMSAKS 164

RESULT 9

A40117

basic fibroblast growth factor - African clawed frog

C:Species: Xenopus laevis (African clawed frog)

C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999

A:Accession: A40117; A29618

R:Kirmel, D.; Abraham, J.A.; Haaparanta, T.; Pallis, T.M.; Kirschner, M.W.

Science 242, 1053-1056, 1998

A:Title: The presence of fibroblast growth factor in the frog egg: its role as a natural

A:Reference number: A40117; MUID:89058621; PMID:3194757

A:Accession: A40117

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-155 <KIM>

A:Cross-references: GB:M18067; NID:9214177; PIDN:AAA49726.1; PID:9214178; GB:M21092

R:Kirmel, D.; Kirschner, M.

Cell 51, 869-877, 1987

A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of

A:Reference number: A29618; MUID:88052890; PMID:3479265

A:Accession: A29618

A:Molecule type: mRNA

A:Residues: 95-110,112-155 <KIT>

C:Superfamily: fibroblast growth factor

C:Keywords: growth factor

Query Match

Best Local Similarity 81.8%; Score 644; DB 1; Length 155;

Matches 121; Conservative 8; Mismatches 17; Indels 0; Gaps 0;

1 PALPEDGSGAPPPGHPKDKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEE 60

10 PTEBEDGNTFPSPGFRDKRLCKNGGFLRLINSDGRVGSNRKSDSHIKLOLAEE 69

61 GVSISIKVCANRYLAMKEDGRLLAKYVTECEFFERLESNNYTRSKYSSWYVALK 120

70 GVSISIKVCANRYLAMKEDGRLLAKYVTECEFFERLESNNYTRSKYSSWYVALK 129

121 TGQYKLGPKTGPQKALFLPMSAKS 146

130 TGQYKNGSSTGPQKALFLPMSAKS 155

RESULT 10

A32484

basic fibroblast growth factor precursor, 25k - guinea pig (fragments)

C:Species: Cavia porcellus (guinea pig)

C:Date: 20-Oct-1989 #sequence\_revision 20-Oct-1989 #text\_change 15-Jun-1996

C:Accession: A32484

R:Sommer, A.; Moscatelli, D.; Rifkin, D.B.

Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989

A:Title: An amino-terminally extended and post-translationally modified form of a 25k

A:Reference number: A32484; MUID:89273588; PMID:2730645

A:Accession: A32484

A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual

A:Molecule type: mRNA

A:Residues: 1-125 <SOM>

C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 54.1%; Score 425.5; DB 2; Length 125;

Matches 89; Conservative 1; Mismatches 5; Indels 51; Gaps 3;

1 PALPEDGSGAPPPGHPKDKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEE 60

31 PALPEGGSGAPPPGHPKDKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEE 65

61 GVSISIKVCANRYLAMKEDGRLLAKYVTECEFFERLESNNYTRSKYSSWYVALK 120

66 -----CVTDECEFFERLESNNYTRSKYSSWYVALK 99

121 TGQYKLGPKTGPQKALFLPMSAKS 146

100 TGQYKLGSKTGPQKALFLPMSAKS 125

RESULT 11

A60721

acidic fibroblast growth factor - golden hamster

N:Alternate names: heparin-binding growth factor 1

C:Species: Mesocricetus auratus (golden hamster)

C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999

A:Accession: A60721

R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.

J. Cell. Biochem. 43, 17-26, 1990

A:Title: Characterization of the hamster DDF-1 cell aEGF/HGF-1 gene and cDNA and its

A:Reference number: A60721; MUID:90270291; PMID:1693366

A:Accession: A60721

A:Status: not compared with conceptual translation

A:Molecule type: DNA

A:Residues: 1-155 <HAL>

C:Superfamily: fibroblast growth factor

C:Keywords: growth factor; heparin binding

Query Match

Best Local Similarity 51.5%; Score 405; DB 1; Length 155;

Matches 78; Conservative 17; Mismatches 39; Indels 2; Gaps 1;

13 PGHFKDPKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEEGVVSIKVCANR 72

19 PPGVTKKRLCKNGGFLRIHPDGRVGVREKSDPHIKLOLAEEGVVSIKVCANR 78

73 YLAMKEDGRLLAKYVTECEFFERLESNNYTRSKYSSWYVALKRTGQYKLGPKT 130

79 YLAMTDLLLGSGQTPNECFLEERLENNHYNTYTSKHAENKNEVGLKNGSGCRGPR 138

131 GPGOKALFLPMSAKS 146

139 HYGOKALFLPMSAKS 154

RESULT 12

A33665

acidic fibroblast growth factor 1 precursor [validated] - human

N:Alternate names: beta-ECGF; endothelial cell growth factor beta; heparin-binding 9

C:Species: Homo sapiens (man)

C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 08-Dec-2000

A:Accession: A33665; A32316; S18217; A43804; A24662; JH0707; S35336; S35336; I39413;

R:Mergia, A.; Tischer, E.; Graves, D.; Tumbolo, A.; Miller, J.; Gospodarowicz, D.; AT

Biochem. Biophys. Res. Commun. 164, 1121-1129, 1989

A:Title: Structural analysis of the gene for human acidic fibroblast growth factor.  
A:Reference number: A33665; MUID:90073637; PMID:2590193  
A:Accession: A33665  
A:Molecule type: DNA  
A:Residues: 1-155 <MER>  
A:Cross-references: GB:M30491  
Mol. Cell. Biol. 9, 2387-2395, 1989  
R:Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M.  
A:Title: Cloning of the gene coding for human class I heparin-binding growth factor and  
A:Reference number: A43316; MUID:89343957; PMID:2474753  
A:Accession: A43316  
A:Molecule type: DNA  
A:Residues: 1-155 <MAN>  
A:Cross-references: GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768  
R:Wang, W.P.; Quirk, D.B.; Balcerzak, S.P.; Needleman, S.W.; Chiu, I.M.  
Oncogene 6, 1521-1529, 1991  
A:Title: Cloning and sequence analysis of the human acidic fibroblast growth factor gene  
A:Reference number: S18217; MUID:92019819; PMID:1717925  
A:Accession: S18217  
A:Molecule type: DNA  
A:Residues: 1-155 <NA2>  
A:Cross-references: EMBL:M23086  
R:Chiu, I.M.; Wang, W.P.; Lehtoma, K.  
Oncogene 5, 755-762, 1990  
A:Title: Alternative splicing generates two forms of mRNA coding for human heparin-binding  
A:Reference number: A43804; MUID:90265618; PMID:1693186  
A:Accession: A43804  
A:Molecule type: mRNA  
A:Residues: 1-155 <CH1>  
A:Cross-references: EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436  
R:Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.;  
Science 233, 541-545, 1986  
A:Title: Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosomal  
A:Reference number: A24662; MUID:86261805; PMID:3523756  
A:Accession: A24662  
A:Molecule type: mRNA  
A:Residues: 1-135 <XAV>  
A:Cross-references: GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942  
R:Yu, Y.L.; Kna, H.; Golden, J.A.; Mjchelsen, A.A.J.; Goetzl, E.J.; Turck, C.W.  
J. Exp. Med. 175, 1073-1080, 1992  
A:Title: An acidic fibroblast growth factor protein generated by alternate splicing acts  
A:Reference number: JH0707; MUID:92202857; PMID:1372643  
A:Accession: JH0707  
A:Molecule type: mRNA  
A:Residues: 1-155 <YUY>  
A:Cross-references: NID:g396163; PIDN:CAA46661.1; PID:g396164  
R:Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu,  
Nucleic Acids Res. 21, 489-495, 1993  
A:Title: Cloning of two novel forms of human acidic fibroblast growth factor (aFGF) mRNA  
A:Reference number: S35535; MUID:93181239; PMID:7680120  
A:Accession: S35535  
A:Molecule type: mRNA  
A:Status: translation not shown  
A:Residues: 1-58 <PA2>  
A:Cross-references: GB:L01487  
R:Crumley, G.; Dionne, C.A.; Jaye, M.  
Biochem. Biophys. Res. Commun. 171, 7-13, 1990  
A:Title: The gene for human acidic fibroblast growth factor encodes two upstream exons a  
A:Reference number: I39412; MUID:90365758; PMID:2393407  
A:Accession: I39412  
A:Molecule type: mRNA  
A:Status: translation not shown  
A:Residues: 1-58 <PA2>  
A:Cross-references: GB:M0515; NID:g178226; PIDN:AAA51672.1; PID:g553170; GB:M0516; NID:  
R:Harper, J.W.; Striydom, D.J.; Lobd, R.R.  
Biochemistry 25, 4097-4103, 1986  
A:Reference number: A23553; MUID:86296647; PMID:2427112  
A:Accession: A23553

```

A:Molecule type: protein
A:Residues: 16-155 <HAR>
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 138, 611-617, 1986
A>Title: The complete amino acid sequence of human brain-derived acidic fibroblast gr
A:Reference number: A24820; MUID:86295741; PMID:3557167
A:Accession: A24820
A:Molecule type: protein
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A>Title: Human brain-derived acidic and basic fibroblast growth factors: amino termin
A:Reference number: A90122; MUID:86186784; PMID:3964259
A:Accession: A24243
A:Molecule type: protein
A:Residues: 16-47 <GI2>
A:Experimental source: brain
R:Gautschi, P.; Prater-Schroder, M.; Bohlen, P.
FEBS Lett. 204, 203-207, 1986
A>Title: Partial molecular characterization of endothelial cell mitogens from human b
A:Reference number: A91364; MUID:86275260; PMID:3732516
A:Accession: A24301
A:Molecule type: protein
A:Residues: 16-30,'X',32-49 <GAU>
R:Gautschi-Sova, P.; Muller, T.; Bohlen, P.
Biochem. Biophys. Res. Commun. 140, 874-880, 1986
A>Title: Amino acid sequence of human acidic fibroblast growth factor.
A:Reference number: A26386; MUID:87048871; PMID:3778488
A:Accession: A26386
A:Molecule type: protein
A:Residues: 16-155 <GA2>
A:Experimental source: brain
R:Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.
Biochemistry 33, 7193-7202, 1994
A>Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
A:Reference number: A53639; MUID:94271773; PMID:7516183
A:Accession: A53639
A:Molecule type: protein
A:Residue type: protein
A:Residues: 16-30,'X',32-38;73-75,'X',77-97,'X',99-101,128-131,'X',133-140,'X',142-15
C:Genetics:
A:Gene: GDB:FGFL; FGFA
A:Cross-references: GDB:119909; OMIM:131220
A:Map position: 5q31.3-5q33.2
A:Introns: 57/1; 91/3
C:Superfamily: fibroblast growth factor
C:Keywords: alternative splicing; growth factor; heparin binding
P:16-155/Product: fibroblast growth factor 1 #status experimental <MAT>
F:129/Binding site: carbohydrate (Asn) (covalent) #status absent
Query Match 50.2%; Score 395; DB 1; Length 155;
Best Local Similarity 56.6%; Pred. No. 4.2e-32;
Matches 77; Conservative 17; Mismatches 40; Indels 2; Gaps 1;
QY 13 PGHFKDKPKRLKYCKNGGFLLRIHPDGRVDGYREKSDPIKIQLDLAEENGVSISGVCANR 72
||||| :||| ||||| ||||| ||||| ||||| ||||| :
Db 19 PGNWKKFKLLYCSNGHFLRLIPDGTVGDTRDSDDIOLLSAESVGEVYSTERTGQ 78
73 YLAMEDRRILASKVTDECFPEERLESNNNTYSRKYS--SMYVALKRTGGYKLGPKT 130
||||| ||| |.: ||| ||||| ||||| ||||| ||||| :||| ||| :||| |||
Db 79 YLAMTDGLLTGSQPNEECLELERLEEHNHYNTISKRAHEKNMFVLKKNGSCKRGPT 138
QY 131 GPQGKAIFLPMSAKS 146
||||| ||||| :
Db 139 HYCGKAIFLPMPVS 154
-SSULT 13
:0130
Idic fibroblast growth factor - chicken
Alternate names: endothelial cell growth factor
Species: Gallus gallus (chicken)
Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 16-Jul-1999
Accession: A00130; S02639

```



R.Schnuerch, H.; Risau, W.  
Development 111, 1143-1154, 1991  
A:Title: Differentiating and mature neurons express the acidic fibroblast growth factor  
A:Reference number: A60130; MUID:9134925; PMID:1715259  
A:Accession: A60130  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-155 <SCH>  
A:Cross-references: GB:S63263; NID:g234372; PIDN:AA19629.1; PID:g234373  
R:Risau, W.; Gautschi-Sova, P.; Boehlen, P.  
EMBO J. 7, 959-962, 1988  
A:Title: Endothelial cell growth factors in embryonic and adult chick brain are related  
A:Reference number: S02639; MUID:88296438; PMID:3402441  
A:Accession: S02639  
A:Molecule type: protein  
A:Residues: 22-30, 'X', 32-44, 'X', 46-48 <RIS>  
C:Superfamily: fibroblast growth factor  
C:Keywords: growth factor

Query Match 49.9%; Score 392.5; DB 2; Length 155;  
Best Local Similarity 55.2%; Pred. No. 7.5e-32;  
Matches 79; Conservative 21; Mismatches 38; Indels 5; Gaps 2;

QY 2 ALPDGGSAPFPGRHKKDKRLCKNGGFRLRHPDGRVDGVREKSDPHIKLOLAEEERG 61  
DB 11 ALTERG--LPNGYKKRKLKLYCSNGGHFLRLPDGKVDGTRDSOHIQLOLSAEDVG 67  
QY 62 VYSIKVCANRYLAKMEDGRLLASCKVTDECFEERLESNNYNTYRSRYS--SWYVALK 119  
DB 68 EYIKSTAGQYLIAMDTNGLILYGSQLPGECLFLERLEENHYNTYTSKHNADKNMVGK 127  
QY 120 RTGQYKLGPRKTPGGOKAILFLPM 142  
DB 128 KNGSKLGPRTYHGOKAILFLPL 150

## RESULT 14

S04147  
acidic fibroblast growth factor 1 - rat  
N:Alternate names: heparin-binding growth factor 1  
C:Species: Rattus norvegicus (Norway rat)  
C>Date: 28-Feb-1990 #sequence\_revision 28-Feb-1990 #text\_change 16-Jul-1999  
C:Accession: S04147  
R:Goodrich, S.P.; Yan, G.C.; Bahnenburg, K.; Mansson, P.E.  
Nucleic Acids Res. 17, 2867, 1989  
A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).  
A:Reference number: S04147; MUID:89240051; PMID:2470029  
A:Accession: S04147  
A:Molecule type: mRNA  
A:Residues: 1-155 <GOO>  
A:Cross-references: EMBL:X14232; NID:g56351; PIDN:CAA32448.1; PID:g56352  
C:Superfamily: fibroblast growth factor  
C:Keywords: growth factor; heparin binding

Query Match 49.7%; Score 391; DB 2; Length 155;  
Best Local Similarity 55.9%; Pred. No. 1.1e-31;  
Matches 76; Conservative 18; Mismatches 40; Indels 2; Gaps 1;

QY 13 PGHFDPKRLKCKNGGFRLRHPDGRVDGVREKSDPHIKLOLAEEERGVSIGVCANR 72  
DB 19 PLGNYKKRKLKLYCSNGGHFLRLPDGTVDTGTRDSOHIQLOLSAESAGEYIKGTETGQ 78  
QY 73 YLAKMEDGRLLASCKVTDECFEERLESNNYNTYRSRYS--SWYVALKRTGQYKLGPKT 130  
DB 79 YLAMDTGGLYGSQTPNECLFLERLEENHYNTYTSKHNADKNMVGKLNKSGCKRGPRT 138  
QY 131 GPGOKAILFLPM 146  
DB 139 HYGOKAILFLPLPVSS 154

RESULT 15  
D37360

acidic fibroblast growth factor - mouse  
N:Alternate names: aFGF; FGF-1  
C:Species: Mus musculus (house mouse)  
C>Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
C:Accession: D37360; J05231  
R:Hebert, J.M.; Basilico, C.; Goldfarb, R.; Haub, O.; Martin, G.R.  
Dev. Biol. 138, 454-463, 1990  
A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
A:Reference number: A37360; MUID:90201563; PMID:2318343  
A:Accession: D37360  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-155 <HEB>  
A:Cross-references: GB:M30641; NID:g193284; PIDN:AA37618.1; PID:g309236  
R:Madhavi, F.; Hackshaw, K.V.; Chiu, I.M.  
Gene 179, 231-236, 1996  
A:Title: Cloning and characterization of the mouse Fgf-1 gene.  
A:Reference number: J05231; MUID:97128312; PMID:8972905  
A:Accession: J05231  
A:Status: preliminary  
A:Molecule type: DNA  
A:Residues: 1-155 <MAD>  
A:Cross-references: GB:U36456  
C:Comment: This protein is an inducer of neovascularization in angiogenic disease inc  
C:Genetics:  
A:Gene: Fgf-1  
A:Introns: 57/1; 91/3  
C:Superfamily: fibroblast growth factor

Query Match 49.7%; Score 391; DB 2; Length 155;  
Best Local Similarity 55.9%; Pred. No. 1.1e-31;  
Matches 76; Conservative 18; Mismatches 40; Indels 2; Gaps 1;

QY 13 PGHFDPKRLKCKNGGFRLRHPDGRVDGVREKSDPHIKLOLAEEERGVSIGVCANR 72  
DB 19 PLGNYKKRKLKLYCSNGGHFLRLPDGTVDTGTRDSOHIQLOLSAESAGEYIKGTETGQ 78  
QY 73 YLAKMEDGRLLASCKVTDECFEERLESNNYNTYRSRYS--SWYVALKRTGQYKLGPKT 130  
DB 79 YLAMDTGGLYGSQTPNECLFLERLEENHYNTYTSKHNADKNMVGKLNKSGCKRGPRT 138  
QY 131 GPGOKAILFLPM 146  
DB 139 HYGOKAILFLPLPVSS 154

Search completed: December 4, 2002, 11:12:47  
Job time : 15.5 secs



GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Comugen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:06:33 ; Search time 8.5 Seconds  
(without alignments)  
712.417 Million cell updates/sec

Title: US-09-886-856-2

Perfect score: 787  
Sequence: 1 PALPDDGGSGAFPPGHFKDP.....GPKTGPGRKALLFLPMASAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database: SwissProt\_40:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	787	100.0	155	1	FGF2_BOVIN
2	781	99.2	155	1	FGF2_SHEEP
3	776	98.6	155	1	FGF2_HUMAN
4	759.5	96.5	154	1	FGF2_RAT
5	754.5	95.9	154	1	FGF2_MOUSE
6	736	93.5	137	1	FGF2_RABIT
7	734	93.3	158	1	FGF2_CHICK
8	717.5	91.2	156	1	FGF2_MONDO
9	644	81.8	155	1	FGF2_XENLA
10	405	51.5	155	1	FGF1_MESAU
11	395	50.2	155	1	FGF1_HUMAN
12	392.5	49.9	155	1	FGF1_CHICK
13	391	49.7	155	1	FGF1_MOUSE
14	389	49.4	152	1	FGF1_PIG
15	384	48.8	155	1	FGF1_BOVIN
16	252	32.0	194	1	FGF4_CHICK
17	251.5	32.0	256	1	FGF3_BRARE
18	249.5	31.7	264	1	FGF5_MOUSE
19	249.5	31.7	266	1	FGF5_RAT
20	246	31.3	220	1	FGF3_CHICK
21	245.5	31.2	206	1	FGF4_HUMAN
22	245	31.1	208	1	FGF6_HUMAN
23	245	31.1	208	1	FGF6_MOUSE
24	243.5	30.9	206	1	FGF4_BOVIN
25	241	30.6	268	1	FGF5_HUMAN
26	236	30.0	187	1	FGF4_XENLA
27	235.5	29.9	237	1	FGF3_XENLA
28	235	29.9	245	1	FGF3_MOUSE
29	234	29.7	239	1	FGF3_HUMAN
30	232.5	29.5	202	1	FGF4_MOUSE
31	231.5	29.4	192	1	FGF8_XENLA
32	215	27.3	208	1	FGF9_HUMAN
33	215	27.3	208	1	FGF9_MOUSE

34	215	27.3	208	1	FGF9_RAT	P36364	rattus norv
35	211.5	26.9	209	1	FGF9_XENLA	O91875	xenopus lae
36	209	26.6	211	1	FGF8_HUMAN	Q9NP95	homo sapien
37	206.5	26.2	207	1	FGF8_RAT	O54769	rattus norv
38	205.5	26.1	194	1	FGF7_CANFA	P79150	canis famill
39	205.5	26.1	207	1	FGF6_HUMAN	O43320	homo sapien
40	204.5	26.0	194	1	FGF7_MOUSE	P36363	mus musculu
41	203	25.8	208	1	FGF4_HUMAN	O15520	homo sapien
42	203	25.8	215	1	FGF4_RAT	P70492	rattus norv
43	202.5	25.7	194	1	FGF7_HUMAN	P21781	homo sapien
44	202.5	25.7	194	1	FGF7_SHEEP	P48808	ovis aries
45	200	25.4	209	1	FGF4_MOUSE	O35565	mus musculu

## ALIGNMENTS

RESULT 1  
ID FGF2\_BOVIN STANDARD; PRT; 155 AA.  
AC P03969;  
DT 23-OCT-1986 (Rel. 02, Created)  
DT 23-OCT-1986 (Rel. 02, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatiotin) [Contains: Kidney-derived growth factor].  
GN FGF2 OR FGF-2.  
OS Bos taurus (Bovine).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Bovinae; Bos.  
OC NCBI\_TaxID:9913;  
OX [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE-66261806; PubMed-2425435;  
RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjertild K.A., Gospodarowicz D., Fiddes J.C.;  
RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";  
RL Science 233:545-548(1986).  
[2]  
RP SEQUENCE FROM N.A.  
RX MEDLINE-87217066; PubMed-3472745;  
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";  
RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
[3]  
RP SEQUENCE OF 10-155.  
RX MEDLINE-86016731; PubMed-3863109;  
RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;  
RT "Primary structure of bovine pituitary basic fibroblast growth factor (bFGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";  
RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).  
[4]  
RP SEQUENCE OF 1-9.  
RX MEDLINE-86295737; PubMed-3741423;  
RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;  
RT "Isolation of an amino terminal extended form of basic fibroblast growth factor.";  
RL Biochem. Biophys. Res. Commun. 138:580-588(1986).  
[5]  
RP SEQUENCE OF 25-41.  
RX TISSUE-Kidney; PubMed-4081126;  
RX MEDLINE-86095426;  
RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;  
RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";  
RL Regul. Pept. 12:201-213(1985).

RN [6]  
 RP SEQUENCE OF 21-40.  
 RC TISSUE-Kidney;  
 RX MEDLINE-67119165; PubMed-3809608;  
 RA Ueno N., Baird A., Esch F., Shimazaki S., Ling N., Gillemin R.;  
 RT "Purification and partial characterization of a mitogenic factor from  
 RT bovine liver: structural homology with basic fibroblast growth  
 RT factor.";  
 RL Regul. Pept. 16:135-145(1986).  
 RN [7]  
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RA MEDLINE-91095983; PubMed-1702556;  
 RA Zhu X., Komiyu H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
 RA Hsu B.T., Rees D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth  
 RT factors.";  
 RL Science 251:90-93(1991).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; M13440; AAA30518.1; -;  
 DR PIR; A24663; GKBOB.  
 DR PIR; A24819; A24819.  
 DR PIR; A32878; A32878.  
 DR PDB; 1BAS; 31-OCT-93.  
 DR InterPro; IPR002209; HB/F-growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F-growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 KW 3D-structure.  
 FT PROPEP 1 9  
 FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT SITE 25 155 KIDNEY-DERIVED GROWTH FACTOR.  
 FT SITE 46 48 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 88 90 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 27 31 HEPARIN (POTENTIAL).  
 FT STRAND 116 119 HEPARIN (POTENTIAL).  
 FT TURN 30 34  
 FT TURN 35 38  
 FT TURN 39 43  
 FT TURN 45 46  
 FT STRAND 49 52  
 FT TURN 55 56  
 FT HELIX 58 60  
 FT HELIX 62 68  
 FT TURN 69 70  
 FT STRAND 71 76  
 FT TURN 77 80  
 FT STRAND 81 85  
 FT TURN 87 88  
 FT STRAND 91 94  
 FT HELIX 99 101  
 FT STRAND 103 107  
 FT TURN 109 110  
 FT STRAND 113 117

FT TURN 121 122  
 FT STRAND 124 124  
 FT STRAND 127 127  
 FT TURN 129 130  
 FT STRAND 133 133  
 FT HELIX 136 138  
 FT TURN 141 142  
 FT HELIX 144 146  
 FT STRAND 148 151  
 SQ SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;  
 Query Match 100.0%; Score 787; DB 1; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 4,7e-75;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 PALPDEGGSGAFPFGHFKPRKLYCKNGGFFLRHPDGRVDGVREKSPHIKLOLAER 60  
 DB 10 PALPDEGGSGAFPFGHFKPRKLYCKNGGFFLRHPDGRVDGVREKSPHIKLOLAER 69  
 QY 61 GVASIKGVCANRYLAMEDGRLLASKCYTDCFFERLESNNYTRSRKYSWYVALKR 120  
 DB 70 GVASIKGVCANRYLAMEDGRLLASKCYTDCFFERLESNNYTRSRKYSWYVALKR 129  
 QY 121 TGQYKLGKPTGGQKALFLPMSAKS 146  
 DB 130 TGQYKLGKPTGGQKALFLPMSAKS 155  
 RESULT 2  
 FGF2\_SHEEP  
 ID FGF2\_SHEEP STANDARD; PRT; 155 AA.  
 AC P20003;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast  
 DE growth factor) (BFGF) (Prostatropin).  
 GN FGF2 OR FGF-2.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 OX NCBI\_TaxID:9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;  
 RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.  
 RN [2]  
 RP SEQUENCE OF 9-155.  
 RX MEDLINE-98055577; PubMed-3678486;  
 RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,  
 RA Rudira M.R., Burgess A.W.;  
 RT "Primary structure of ovine pituitary basic fibroblast growth  
 RT factor.";  
 RL FEBS Lett. 224:128-132(1987).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; L36136; AAA31519.1; -;

DR PIR: S00185; S00185.  
 DR HSP: P09038; 1BFF.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; ILHBGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 DR ProSITE: PS00247; HBGF\_FGF; 1.  
 DR Growth factor: Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 9  
 FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2,  
 FT SITE 45 48 CELL ATTACHMENT SITE (POTENTIAL).  
 FT SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 27 31 HEPARIN (POTENTIAL).  
 FT BINDING 116 119 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;  
 Query Match 99.2%; Score 781; DB 1; Length 155;  
 Best Local Similarity 99.3%; Pred. No. 2e-74;  
 Matches 145; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 PALPDDGGGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDYGRKSDPHIKLQAEER 60  
 DB 10 PALPDDGGSSAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDYGRKSDPHIKLQAEER 69  
 QY 61 GVSISGVCANRYLAKMKEDGRLLASKCYDECFEFLRSNNYTRSRKSSMYVALKR 120  
 DB 70 GVSISGVCANRYLAKMKEDGRLLASKCYDECFEFLRSNNYTRSRKSSMYVALKR 129  
 QY 121 TQGYKLGPKTGPQKAILFLPMSAKS 146  
 DB 130 TQGYKLGPKTGPQKAILFLPMSAKS 155  
 RESULT 3  
 FGF2\_HUMAN STANDARD; PRT; 155 AA.  
 AC P09038;  
 DT 01-NOV-1988 (Rel. 09, Created)  
 DT 01-NOV-1988 (Rel. 09, Last sequence update)  
 DT 15-NOV-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).  
 GN FGF2 OR FGF8.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
 OC NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87053817; PubMed=3780670;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J., Gospodarowicz D., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence and genomic organization.";  
 RL EMBO J. 5:2523-2528(1986).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87217066; PubMed=3472745;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";  
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87213238; PubMed=3579930;  
 RA Sommer A., Brewer M.T., Thompson R.C., Moscattelli D., Presta M., Rifkin D.B.;  
 RT "A form of human basic fibroblast growth factor with an extended amino terminus.";  
 RL Biochem. Biophys. Res. Commun. 144:543-550(1987).  
 RN [4]

RP SEQUENCE FROM N.A.  
 RX MEDLINE=87162468; PubMed=2435575;  
 RA Kurikawa T., Sasada K., Iwane M., Igarashi K.;  
 RT "Cloning and expression of cDNA encoding human basic fibroblast growth factor.";  
 RL FEBS Lett. 213:189-194(1987).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89184522; PubMed=2538817;  
 RA Preiss H., Kagnad M., Piras A.C., Klagsbrun M., Lelias J.M., Liauzon P., Chalou P., Tauber J.P., Amalric F., Smith J.A., Caput D.;  
 RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
 RN [6]  
 RP SEQUENCE OF 10-35.  
 RX MEDLINE=86275260; PubMed=3732516;  
 RA Gautschi P., Frater-Schroeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";  
 RL FEBS Lett. 204:203-207(1986).  
 RN [7]  
 RP SEQUENCE OF 10-39.  
 RX MEDLINE=86186784; PubMed=3964259;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities.";  
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 RN [8]  
 RP SEQUENCE OF 2-22.  
 RX MEDLINE=87156686; PubMed=2435284;  
 RA Story M.T., Esch F., Shimasaki S., Saase J., Jacobs S.C., Lawson R.K.;  
 RT "Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue.";  
 RL Biochem. Biophys. Res. Commun. 142:702-709(1987).  
 RN [9]  
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).  
 RX MEDLINE=91195367; PubMed=1707542;  
 RA Erikson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).  
 RN [10]  
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RX MEDLINE=94004464; PubMed=7691311;  
 RA Erikson A.E., Cousens L.S., Matthews B.W.;  
 RT "Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution.";  
 RL Protein Sci. 2:1274-1284(1993).  
 RN [11]  
 RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).  
 RX MEDLINE=91195368; PubMed=1849658;  
 RA Zhang J., Cousens L.S., Barr P.O., Sprang S.R.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor, a structural homolog of interleukin 1 beta.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).  
 RN [12]  
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RX MEDLINE=92121151; PubMed=1769963;  
 RA Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;  
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A resolution.";  
 RL J. Biochem. 110:360-363(1991).  
 RN [13]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=91095963; PubMed=1702556;  
 RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth factors.";  
 RL Science 251:90-93(1991).

```

RN [14]
RP STRUCTURE BY NMR.
RA MEDLINE-97040521; PubMed-8885834;
RX Moy F.J., Seddon A.P., Boehlen P., Powers R.;
RT "High-resolution solution structure of basic fibroblast growth factor
RT determined by multidimensional heteronuclear magnetic resonance
RT spectroscopy".
RL Biochemistry 35:1352-1356(1996).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL_M17599; AA52534.1; ALT_INIT.
DR EMBL_X04431; CA28027.1; -
DR EMBL_X04432; CA28028.1; -
DR EMBL_X04433; CA28029.1; -
DR EMBL_M27968; AA52448.1; -
DR EMBL_J04513; AA52533.1; ALT_INIT.
DR PIR_A25824; A25824.
DR PIR_A26642; A26642.
DR PIR_B24243; B24243.
DR PIR_B24301; B24301.
DR PIR_B32878; B32878.
DR PIR_S00297; S00297.
DR PDB_2FGE; 15-APR-92.
DR PDB_4FGE; 15-JUL-93.
DR PDB_1FGA; 15-JUL-93.
DR PDB_1BFB; 03-APR-96.
DR PDB_1BFC; 03-APR-96.
DR PDB_1BFF; 16-JUN-97.
DR PDB_1BFG; 31-JAN-94.
DR PDB_2BFH; 30-APR-94.
DR PDB_1BLA; 08-NOV-96.
DR PDB_1BLD; 08-NOV-96.
DR Genew; HGNC:3676; FGF2.
DR MIM; 134920; -
DR InterPro; IPR002209; HB/F-growthfact.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PRO0262; ILHBGF.
DR PRODOM; PD000831; HB/F-growthfact; 1.
DR SMART; SM00442; FGF; 1; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW 3D-structure.
FT PROPP 1 9
FT CHAIN 10 155
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT STRAND 30 34
FT TURN 35 38
FT STRAND 39 43
FT TURN 45 46
FT STRAND 49 52
FT TURN 55 56
FT HELIX 58 60
FT STRAND 62 66
FT TURN 69 70

```

```

FT STRAND 71 76
FT TURN 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110
FT STRAND 113 117
FT TURN 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 132 133
FT TURN 136 138
FT HELIX 141 142
FT TURN 144 146
FT STRAND 148 152

Query Match 98.6%; Score 776; DB 1; Length 155;
Best Local Similarity 98.6%; Pred. No. 6,6e-74;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAPPPGHFKDPKRLCKNGGFEFLRHPDGRVYDGRKSDPHTKLOAEER 60
DB 10 PALPEDGSGAPPPGHFKDPKRLCKNGGFEFLRHPDGRVYDGRKSDPHTKLOAEER 69
QY 61 GVSISIKVCANRYLAKMEDGRLASKCVTDECFEERLESNNYTRSKYSSWYALKR 120
DB 70 GVSISIKVCANRYLAKMEDGRLASKCVTDECFEERLESNNYTRSKRYTSWYALKR 129
QY 121 TGQYKLGPKTGPQKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 4
FGF2_RAT STANDARD; PRT; 154 AA.
AC P13109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatoplin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_Taxid=10116;
RN [1]
RP SEQUENCE FROM N.A.
RX STRAIN-Sprague-Dawley; TISSUE-Ovary;
RX MEDLINE-89061721; PubMed-3196337;
RA Shimazaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT "Complementary DNA cloning and sequencing of rat ovarian basic
RT fibroblast growth factor and tissue distribution study of its mRNA.";
RL Biochem. Biophys. Res. Commun. 157:256-263(1988).
RN [2]
RP SEQUENCE FROM N.A.
RP TISSUE-brain;
RX MEDLINE-88262516; PubMed-3387229;
RA Kurokawa T., Seno M., Igataishi K.;
RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:5201-5201(1988).
RN [3]
RP SEQUENCE OF 1-28 FROM N.A.
RX STRAIN-Sprague-Dawley; TISSUE-Testis;
RX MEDLINE-97200905; PubMed-9048734;
RA Pasumathri K.B.S., Jin Y., Cattini P.A.;
RT "Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";

```

RL J. Neurochem. 68:898-908(1997).

RN [4]

RP SEQUENCE OF 35-154 FROM N.A.

RC STRAIN-Sprague-Dawley; Tissue-Brain;

RX MEDLINE-92329546; PubMed-1378302;

RA El-Husseini A.E.-D., Paterson J.A., Mwal Y., Shiu R.P.C.;

RT PCR detection of the rat brain basic fibroblast growth factor (brGF)

RT mRNA containing a unique 3' untranslated region.

RL Blochum. Biophys. Acta 1131:314-316(1992).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC ARGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>

CC or send an email to [license@sib-sib.ch](mailto:license@sib-sib.ch)).

CC -----

DR EMBL: M22427; AAA41210.1; -

DR EMBL: X07285; CAA30265.1; -

DR EMBL: U78079; AAC53225.1; -

DR EMBL: X61697; CAA43863.1; -

DR PIR: S00876; S00876.

DR PIR: A31674; A31674.

DR HSSP: P09038; 1BFF.

DR InterPro: IPR002209; HB/F-growthfact.

DR InterPro: IPR002348; IL1\_HBGF.

DR Pfam: PF00167; FGF, 1.

DR PRINTS: PR00262; IL1HBGF.

DR ProDom: PD000831; HB/F-growthfact; 1.

DR SMART: SM00442; FGF, 1.

DR PROSITE: PS00247; HBGF\_FGF, 1.

DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.

DR PROPEP 1 9

FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.

FT BINDING 26 30 HEPARIN (POTENTIAL).

FT BINDING 115 118 HEPARIN (POTENTIAL).

SO SEQUENCE 154 AA; 17139 MW; 1A0F14FF423BD403 CRC64;

Query Match 96.5%; Score 759.5; DB 1; Length 154;

Best Local Similarity 97.3%; Pred. No. 3.5e-72;

Matches 142; Conservative 2; Mismatches 1; Indels 1; Gaps 1;

QY 1 PALPEDGGGAFPPGPHFKPKRLKCKNGGFLLRIHPDGVGVREKSDPHVKTQLDAEER 60

DB 10 PALPEGGG-AFPDPGHFKPKRLKCKNGGFLLRIHPDGVGVREKSDPHVKTQLDAEER 68

QY 61 GVSISIKGVCANRYLAKMKEDGRLASKCVDECFEFLRLESNNNTYRSRKYSSMYALAKR 120

DB 69 GVSISIKGVCANRYLAKMKEDGRLASKCVDECFEFLRLESNNNTYRSRKYSSMYALAKR 128

QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146

DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 5

FGF2\_MOUSE STANDARD; PRT; 154 AA.

AC P15655;

DT 01-APR-1990 (Rel. 14, Created)

DT 01-APR-1990 (Rel. 14, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)

DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast

DE growth factor) (brGF) (Prostatiopin).

GN FGF2 OR FGF-2.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI\_Taxid=10090;

QX [1]

RP SEQUENCE FROM N.A.

RX MEDLINE-90201563; PubMed-2318343;

RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;

RT "Isolation of cDNAs encoding four mouse FGF family members and

RT characterization of their expression patterns during embryogenesis."

RL Dev. Biol. 138:454-463(1990).

RL [2]

RP SEQUENCE FROM N.A.

RX STRAIN-C57BL/6J, A/J, and NOD/LtJ; Tissue-Spleen;

RC Ma R.Z., Teuscher C.;

RA Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.

RL -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC ARGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>

CC or send an email to [license@sib-sib.ch](mailto:license@sib-sib.ch)).

CC -----

DR EMBL: M30644; AAA37621.1; -

DR EMBL: AF065903; AAC17503.1; -

DR EMBL: AF065904; AAC17504.1; -

DR EMBL: AF065905; AAC17505.1; -

DR PIR: C37360; C37360.

DR HSSP: P09038; 1BFF.

DR MGD: MGI:95516; Fgf2.

DR InterPro: IPR002209; HB/F-growthfact.

DR InterPro: IPR002348; IL1\_HBGF.

DR Pfam: PF00167; FGF, 1.

DR PRINTS: PR00262; IL1HBGF.

DR ProDom: PD000831; HB/F-growthfact; 1.

DR SMART: SM00442; FGF, 1.

DR PROSITE: PS00247; HBGF\_FGF, 1.

DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.

DR PROPEP 1 9

FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.

FT BINDING 26 30 HEPARIN (POTENTIAL).

FT BINDING 115 118 HEPARIN (POTENTIAL).

SO SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match 95.9%; Score 754.5; DB 1; Length 154;

Best Local Similarity 96.6%; Pred. No. 1.1e-71;

Matches 141; Conservative 3; Mismatches 1; Indels 1; Gaps 1;

QY 1 PALPEDGGGAFPPGPHFKPKRLKCKNGGFLLRIHPDGVGVREKSDPHVKTQLDAEER 60

DB 10 PALPEGGG-AFPDPGHFKPKRLKCKNGGFLLRIHPDGVGVREKSDPHVKTQLDAEER 68

QY 61 GVSISIKGVCANRYLAKMKEDGRLASKCVDECFEFLRLESNNNTYRSRKYSSMYALAKR 120

DB 69 GVSISIKGVCANRYLAKMKEDGRLASKCVDECFEFLRLESNNNTYRSRKYSSMYALAKR 128

QY 121 TGOYKLGPKTGPQKAILFLPMSAKS 146

DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 6  
FGF2\_RABIT  
ID FGF2\_RABIT STANDARD; PRT; 137 AA.  
AC P48799;  
DT 01-FEB-1996 (Rel. 33, Created)  
DT 01-FEB-1996 (Rel. 33, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatoplin) (Fragment).  
GN FGF2  
OS Oryctolagus cuniculus (Rabbit).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.  
OX NCBI\_TaxID=9986;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN-New Zealand white; TISSUE-Smooth muscle;  
RX MEDLINE-93433209; PubMed-8342599;  
RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liu G.;  
RT "Elevated expression of basic fibroblast growth factor in an immortalized rabbit smooth muscle cell line."  
RL Am. J. Pathol. 143:518-527(1993).  
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
CC -1- SUBUNIT: MONOMER.  
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC  
CC EMBL: L12034; AAA31248.1; -  
CC HSSP: P09038; 1BF.  
CC InterPro: IPR002209; HB/F\_growthfact.  
CC Pfam: PF00167; FGF; 1.  
CC ProDom: PD000831; HB/F\_growthfact; 1.  
CC SMART: SM00442; FGF; 1.  
CC PROSITE: PS00247; HBGF\_FGF; 1.  
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
CC BINDING 18 22  
CC FT BINDING 107 110 HEPARIN (POTENTIAL).  
CC FT NON\_TER 137 137  
CC SO SEQUENCE 137 AA; 15418 MW; 0D9E457B88E8C51 CRC64;  
Query Match 93.5%; Score 736; DB 1; Length 137;  
Best Local Similarity 99.3%; Pred. No. 8.5e-70;  
Matches 136; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPDGSGAFPPGHHKDKRRLCKNGGFFLRHPDGRDGVREKSDPHIKLOLAER 60  
DB 1 PALPDGSGAFPPGHHKDKRRLCKNGGFFLRHPDGRDGVREKSDPHIKLOLAER 60  
QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDCFFEEFLSNNTYTSRKYSSVYALKR 120  
DB 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDCFFEEFLSNNTYTSRKYSSVYALKR 120  
QY 121 TGOYKLGPKTGPQKAI 137  
DB 121 TGOYKLGSKTGPQKAI 137

RESULT 7  
FGF2\_CHICK  
ID FGF2\_CHICK STANDARD; PRT; 158 AA.  
AC P48800;

DT 01-FEB-1996 (Rel. 33, Created)  
DT 01-FEB-1996 (Rel. 33, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).  
GN FGF2 OR FGF-2.  
OS Gallus gallus (Chicken).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.  
OX NCBI\_TaxID=9031;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE-93246053; PubMed-7683281;  
RA Borge A.Z., Zeller R., Meljers C.;  
RT "Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis."  
RL Dev. Biol. 157:110-118(1993).  
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
CC -1- SUBUNIT: MONOMER.  
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC  
CC EMBL: M95707; AAA48617.1; -  
CC HSSP: P09038; 1BF.  
CC InterPro: IPR002209; HB/F\_growthfact.  
CC InterPro: IPR002348; IL1\_HBGF.  
CC Pfam: PF00167; FGF; 1.  
CC PRINTS: PR00262; IL1HBGF.  
CC ProDom: PD000831; HB/F\_growthfact; 1.  
CC SMART: SM00442; FGF; 1.  
CC PROSITE: PS00247; HBGF\_FGF; 1.  
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
CC PROPER BY SIMILARITY.  
CC FT CHAIN 13 158  
CC FT BINDING 30 34 HEPARIN (POTENTIAL).  
CC FT BINDING 119 122 HEPARIN (POTENTIAL).  
CC SO SEQUENCE 158 AA; 17374 MW; 7B69B684C1F1816 CRC64;  
Query Match 93.3%; Score 734; DB 1; Length 158;  
Best Local Similarity 93.2%; Pred. No. 1.6e-69;  
Matches 136; Conservative 4; Mismatches 6; Indels 0; Gaps 0;

QY 1 PALPDGSGAFPPGHHKDKRRLCKNGGFFLRHPDGRDGVREKSDPHIKLOLAER 60  
DB 13 PALPDGSGAFPPGHHKDKRRLCKNGGFFLRHPDGRDGVREKSDPHIKLOLAER 72  
QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDCFFEEFLSNNTYTSRKYSSVYALKR 120  
DB 73 GVSISIKVCANRYLAMKEDGRLLASKCVTDCFFEEFLSNNTYTSRKYSSVYALKR 120  
QY 121 TGOYKLGPKTGPQKAI 146  
DB 133 TGOYKPGPKTGPQKAILFLPMSAKS 158

REF T 8  
FGE MONDO  
ID FGF2\_MONDO STANDARD; PRT; 156 AA.  
AC P48798;  
DT 01-FEB-1996 (Rel. 33, Created)

DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatein).  
 GN FGF2.  
 OS Monodelphis domestica (Short-tailed grey opossum).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.  
 CC NCBI\_TaxID=13616;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE-EYE:  
 RX MEDLINE=94296558; PubMed=8024698;  
 RA Kusewitt D.F., Sabourin C.L.K., Sheburn T.E., Ley R.D.;  
 RT "Characterization of cDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica.";  
 RL DNA Cell Biol. 13:549-554(1994).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see <http://www.isb-slb.ch/announce/> or send an email to [license@isb-slb.ch](mailto:license@isb-slb.ch)).  
 CC  
 CC EMBL: Z15154; CAI78854.1; ALT\_INIT.  
 DR HSSP: P09038; 1BFF.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; ILL\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; ILLHBGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 KW PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 9  
 FT CHAIN 10 156  
 FT BINDING 28 32  
 FT BINDING 117 120  
 FT BINDING 156 AA; 17303 MW; 76555FC049BFI209 CRC64;  
 SQ SEQUENCE 156 AA; 17303 MW; 76555FC049BFI209 CRC64;  
 Query Match 91.2%; Score 717.5; DB 1; Length 156;  
 Best Local Similarity 92.5%; Pred. No. 8.4e-68;  
 Matches 136; Conservative 4; Mismatches 6; Indels 1; Gaps 1;  
 QY 1 PALPED-GSSGAFPPGHEFDKRLKCKNGGFFLRHPDGRVGVRSKSDPHIKQLQAAER 59  
 DB 10 PALSGGGGGGAFPPGHEFDKRLKCKNGGFFLRHPDGRVGVRSKSDPHIKQLQAAER 69  
 QY 60 RGVVSTKGVCANRYLAKMKEDGRLLASKCVYDECFEERLESNNYNTYRSKYSWYALK 119  
 DB 70 RGVVSTKGVCANRYLAKMKEDGRLLASKCVYDECFEERLESNNYNTYRSKYSWYALK 129  
 QY 120 RTGVYKLGKTPGQKAILFLPMSAKS 146  
 DB 130 RTGVYKLGKTPGQKAILFLPMSAKS 156  
 RESULT 9  
 ID FGF2\_XENLA STANDARD; PRT; 155 AA.  
 AC P12226;  
 DT 01-OCT-1989 (Rel. 12, Created)  
 DT 01-JAN-1990 (Rel. 13, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).  
 GN FGF2 OR FGF-2.  
 OS Xenopus laevis (African clawed frog).  
 CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;  
 CC Xenopodidae; Xenopus.  
 CC NCBI\_TaxID=8355;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC MEDLINE=89058621; PubMed=3194757;  
 RA Kimmel D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;  
 RT "The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";  
 RL Science 242:1053-1056(1988).  
 RN [2]  
 RP SEQUENCE OF 95-155 FROM N.A.  
 RX MEDLINE=88052890; PubMed=3479265;  
 RA Kimmel D., Kirschner M.;  
 RT "Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus embryo.";  
 RL Cell 51:869-877(1987).  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see <http://www.isb-slb.ch/announce/> or send an email to [license@isb-slb.ch](mailto:license@isb-slb.ch)).  
 CC  
 CC EMBL: M18067; AAA49726.1;  
 DR PIR: A29618; A29618.  
 DR PIR: A40117; A40117.  
 DR HSSP: P09038; 1BFF.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; ILL\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; ILLHBGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 KW PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 9  
 FT CHAIN 10 155  
 FT BINDING 27 31  
 FT BINDING 116 119  
 FT BINDING 111 111  
 FT CONFLICT 111 111  
 SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;  
 Query Match 81.8%; Score 644; DB 1; Length 155;  
 Best Local Similarity 82.9%; Pred. No. 3.8e-60;  
 Matches 121; Conservative 8; Mismatches 17; Indels 0; Gaps 0;  
 QY 1 PALPEDGSGGAFPPGHEFDKRLKCKNGGFFLRHPDGRVGVRSKSDPHIKQLQAAER 60  
 DB 10 PRESEDEGNGTPEFSPGSEKPKRLKCKNGGFFLRHPDGRVGVRSKSDPHIKQLQAAER 69  
 QY 61 GVVSTKGVCANRYLAKMKEDGRLLASKCVYDECFEERLESNNYNTYRSKYSWYALKR 120  
 DB 70 GVVSTKGVCANRYLAKMKEDGRLLASKCVYDECFEERLESNNYNTYRSKYSWYALKR 129  
 QY 121 TGQYKLGKTPGQKAILFLPMSAKS 146  
 DB 130 TGQYKLGKTPGQKAILFLPMSAKS 155  
 RESULT 10  
 ID FGF1\_MESAU STANDARD; PRT; 155 AA.  
 ID FGF1\_MESAU STANDARD; PRT; 155 AA.



```

AC P34004;
DF 01-FEB-1994 (Rel. 28, Created)
DF 01-FEB-1994 (Rel. 28, Last sequence update)
DF 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
DE growth factor) (AFGF).
GN FGFL OR FGF-1.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90270291; PubMed=1693366;
RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;
RT "Characterization of the hamster DDr-1 cell afgf/igfbf-1 gene and cDNA
RT and its modulation by steroids.";
RL J. Cell. Biochem. 43:17-26(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
DR PIR: A60721; A60721.
DR HSSP: P05230; 1RML.
DR InterPro: IPR002209; HB/F-growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HB/F-growthfact; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor: Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15 BY SIMILARITY
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17403 MM; 415EC760E412CC5 CRC64;

Query Match 51.5%; Score 405; DB 1; Length 155;
Best Local Similarity 57.4%; Pred. No. 3; le-35;
Matches 78; Conservative 17; Mismatches 39; Indels 2; Gaps 1;

OY 13 PGHFKDPKRLCYCKNGGFFLRHPDGRVGVREKSDPHIKILOAEERGVSKGVCANR 72
|||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
DB 19 PPGNKKKRLKLYCSNGHFRILPDGYDGTDRSDQIQLDLSAESAGEVITKGTETGQ 78

OY 73 YLAKEDGRLASKVCDECFERLESNNNTYRSRKS--SWYVALKRTQYKRGPT 130
|||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
DB 79 YLAKDTPGLIYQSPNEBCLERLEENHYNTYTSKKAENKMWGLKKNCSKRGPT 138

OY 131 GPGKALIFLPMASAKS 146
|||||:|||||:|||||:|||||:|||||:|||||:|||||:|||||:
DB 139 HYGKALIFLPLPVSS 154

RESULT 11
FGFL_HUMAN STANDARD: PRT: 155 AA.
AC P05230; P07502;
DF 13-AUG-1987 (Rel. 05, Created)
DF 13-AUG-1987 (Rel. 05, Last sequence update)
DF 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
DE growth factor) (AFGF) (Beta-endothelial cell growth factor) (ECGF-
DE beta).
GN FGFL OR FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

```

```

OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=86261805; PubMed=3523756;
RA Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,
RA O'Brien S.J., Modi W.S., Maciag T., Dronan W.N.;
RT "Human endothelial cell growth factor: cloning, nucleotide sequence,
RT and chromosome localization.";
RL Science 233:541-545(1986).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=89343957; PubMed=2474753;
RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;
RT "Cloning of the gene coding for human class 1 heparin-binding growth
RT factor and its expression in fetal tissues.";
RL Mol. Cell. Biol. 9:2387-2395(1989).
RN [3]
RP SEQUENCE FROM N.A.
RX TISSUE=Brain stem;
RA MEDLINE=89343957; PubMed=2474753;
RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;
RT "Cloning of the gene coding for human class 1 heparin-binding growth
RT factor and its expression in fetal tissues.";
RL Mol. Cell. Biol. 9:2387-2395(1989).
RN [4]
RP SEQUENCE FROM N.A.
RX MEDLINE=90073637; PubMed=2590193;
RA Meglia A., Tischer E., Graves D., Tunolo A., Miller J.,
RA Gospektorowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
RT "Structural analysis of the gene for human acidic fibroblast growth
RT factor.";
RL Biochem. Biophys. Res. Commun. 164:1121-1129(1989).
RN [5]
RP SEQUENCE FROM N.A.
RX MEDLINE=92019819; PubMed=1717925;
RA Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.;
RT "Cloning and sequence analysis of the human acidic fibroblast growth
RT factor gene and its preservation in leukemia patients.";
RL Oncogene 6:1521-1529(1991).
RN [6]
RP SEQUENCE FROM N.A.
RX MEDLINE=92202857; PubMed=1372643;
RA Li Y.L., Kha H., Golden J.A., Michelielsen A.A.J., Goetzl E.J.;
RA Turck E.J.;
RT "An acidic fibroblast growth factor protein generated by alternate
RT splicing acts like an antagonist.";
RL J. Exp. Med. 175:1073-1080(1992).
RN [7]
RP SEQUENCE OF 1-154 FROM N.A.
RX MEDLINE=94069734; PubMed=7504343;
RA Zhao X.M., Yeoh T.K., Hiebert M., First W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells.";
RL Transplantation 56:1177-1182(1993).
RN [8]
RP SEQUENCE OF 1-40 FROM N.A.
RX MEDLINE=90365758; PubMed=2393407;
RA Crumley G., Dionne C.A., Jaye M.;
RT "The gene for human acidic fibroblast growth factor encodes two
RT upstream exons alternatively spliced to the first coding exon.";
RL Biochem. Biophys. Res. Commun. 171:7-13(1990).
RN [9]
RP SEQUENCE OF 16-155.
RX MEDLINE=86296647; PubMed=2427112;
RA Harper J.W., Straydom D.J., Lobb R.R.;
RT "Human class 1 heparin-binding growth factor: structure and homology
RT of bovine acidic brain fibroblast growth factor.";
RL J. Biochemistry 25:4097-4103(1986).
RN [10]
RP SEQUENCE OF 16-155.

```



RX MEDLINE-86295741; PubMed-3527167;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "The complete amino acid sequence of human brain-derived acidic  
 fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 138:611-617(1986).  
 [11]  
 RP SEQUENCE OF 16-155.  
 RX MEDLINE-87048871; PubMed-3778488;  
 RA Gautschi-Sova P., Mueller T., Boehlen P.;  
 RT "Amino acid sequence of human acidic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 140:874-880(1986).  
 [12]  
 RP SEQUENCE OF 16-47.  
 RX MEDLINE-86186784; PubMed-3964259;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors:  
 amino terminal sequences and specific mitogenic activities.";  
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 [13]  
 RP SEQUENCE OF 16-49.  
 RX MEDLINE-86275260; PubMed-3732516;  
 RA Gautschi P., Frater-Schoeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from  
 human brain: acidic and basic fibroblast growth factors.";  
 RL FEBS Lett. 204:203-207(1986).  
 [14]  
 RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).  
 RX MEDLINE-96194129; PubMed-8652550;  
 RA Blaher M., Disalvo J., Thomas K.A.;  
 RT "X-ray crystal structure of human acidic fibroblast growth factor.";  
 RL Biochemistry 35:2086-2094(1996).  
 [15]  
 RP STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE-94358885; PubMed-7521397;  
 RA Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M.,  
 Gimenez-Gallego G.;  
 RT "1H-NMR assignment and solution structure of human acidic fibroblast  
 growth factor activated by inositol hexakisulfate.";  
 RL J. Mol. Biol. 242:81-98(1994).  
 [16]  
 RP STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE-97107535; PubMed-8950275;  
 RA Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,  
 Rico M., Gimenez-Gallego G.;  
 RT "Three-dimensional structure of acidic fibroblast growth factor in  
 solution: effects of binding to a heparin functional analog.";  
 RL J. Mol. Biol. 264:162-178(1996).  
 [17]  
 RP STRUCTURE BY NMR OF 25-155.  
 RX MEDLINE-96387896; PubMed-9719643;  
 RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;  
 RT "Solution structure of acidic fibroblast growth factor bound to 1,3,  
 6-naphthalenesulfonate: a minimal model for the anti-tumoral  
 action of suramin and suradistas.";  
 RL J. Mol. Biol. 281:899-915(1998).  
 -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 -1- SUBUNIT: MONOMER.  
 -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 THAN DOES BFGF.  
 -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 the European Bioinformatics Institute. There are no restrictions on its  
 use by non-profit institutions as long as its content is in no way  
 modified and this statement is not removed. Usage by and for commercial  
 entities requires a license agreement (See <http://www.isb.ch/announce/>  
 or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC EMBL: M13361; AAA79245.1; -

DR EMBL: X51943; CAA36206.1; -  
 DR EMBL: M30492; AAA52446.1; -  
 DR EMBL: M30490; AAA52446.1; JOINED.  
 DR EMBL: M30491; AAA52446.1; JOINED.  
 DR EMBL: M60515; AAA51672.1; -  
 DR EMBL: M60516; AAA51673.1; -  
 DR EMBL: M23087; AAA52638.1; -  
 DR EMBL: M23086; AAA52638.1; JOINED.  
 DR EMBL: S67291; AAB29057.2; -  
 DR EMBL: X65778; CAA46661.1; -  
 DR PIR: A23553; A23553.  
 DR PIR: A24243; A24243.  
 DR PIR: A24301; A24301.  
 DR PIR: A24662; A24662.  
 DR PIR: A24820; A24820.  
 DR PIR: A26386; A26386.  
 DR PIR: A33665; A33665.  
 DR PIR: S18217; S18217.  
 DR PDB: 2AFG; 15-OCT-95.  
 DR PDB: 1AXM; 22-APR-98.  
 DR PDB: 2AXM; 22-APR-98.  
 DR PDB: 1RML; 11-NOV-98.  
 DR Genew: HGNC:3665; FGFL.  
 DR MIM: 131220; -  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;  
 KW 3D-structure.  
 FT PROPEP 1 15  
 FT CHAIN 16 155  
 FT MOD\_RES 2 2  
 FT BINDING 24 28  
 FT BINDING 113 116  
 SQ SEQUENCE 155 AA; 17460 MW; F5868BFB09F180 CRC64;  
 Query Match 50.2%; Score 395; DB 1; Length 155;  
 Best local Similarity 56.6%; Pred. No. 3,5e-34;  
 Matches 77; Conservative 17; Mismatches 40; Indels 2; Gaps 1;  
 QY 13 PGHFKDPKRLKYCKNGGFLRIHPDGRVDSREKSDPHIKLQDAEGRVYSIKGCANR 72  
 Db 19 PPGNYKKRKLKLYCSNGHFLRILPDGTGTRDSDDHIOLOSAESVGEVYIKSTEQ 78  
 QY 73 YLAKEDGRLLASKCVTDECFERLESNNYNTYRSKYS--SMYVALKRTGQYKIGPKT 130  
 Db 79 YLAMDITDGLLYGSQTPEECLFLEENHNYYTSKHAKEKNFVLKKNGSCKRPT 138  
 QY 131 GPGOKALFLPMPSAKS 146  
 Db 139 HYGOKALFLPLPYSS 154  
 RESULT 12  
 FGFL\_CHICK  
 ID FGFL\_CHICK STANDARD; PRT; 155 AA.  
 AC P19596;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast  
 growth factor) (AFGF) (Alpha-endothelial cell growth factor).  
 GN FGFL OR FGF-1.  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Actinoptera; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 OC NCBI\_Taxid=9031.  
 RN [1]

```

* SEQUENCE FROM N.A.
RX MEDLINE-91347925; PubMed-1715259;
RA Schurch H., Rissau W.;
RT "Differentiating and mature neurons express the acidic fibroblast
RT growth factor gene during chick neural development.";
RL Development 111:1143-1154(1991).
RN
RN SEQUENCE FROM N.A.
RA Martin G.R., Han J.K.;
RL Submitted (Jul-1995) to the EMBL/Genbank/DBJ databases.
RN
RN [3]
RP SEQUENCE OF 22-48.
RX MEDLINE-88296438; PubMed-3402441;
RA Rissau W., Gautschi-Sova P., Boehlen P.;
RT "Endothelial cell growth factors in embryonic and adult chick brain
RT are related to human acidic fibroblast growth factor.";
RL EMBL J. 7:959-963(1988).
CC
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC
CC -1- SUBUNIT: MONOMER.
CC
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC
CC DR EMBL: S63263; AAB19629.1; -
CC DR EMBL: U31863; AAA80310.1; -
CC DR EMBL: S63261; AAD13942.1; -
CC DR PIR: S02639; S02639;
CC DR HSSP: P05230; 2AMM.
CC DR InterPro: IPR002209; HB/F-growthfact.
CC DR InterPro: IPR002348; IL1_HBGF.
CC DR Pfam: PF00167; FGF; 1.
CC DR PRINTS: PR00262; IL1HBGF.
CC DR PRODom: PD000831; HB/F-growthfact; 1.
CC DR SMART: SM00442; FGF; 1.
CC DR PROSITE: PS00247; HBGF_FGF; 1.
CC KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
CC FT PROPEP 1 15
CC FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
CC FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
CC FT BINDING 24 28 HEPARIN (POTENTIAL).
CC FT BINDING 113 116 HEPARIN (POTENTIAL).
CC SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CR664;
Query Match 49.9%; Score 392.5; DB 1; Length 155;
Best Local Similarity 55.2%; Pred. No. 6.3e-34;
Matches 79; Conservative 21; Mismatches 38; Indels 5; Gaps 2;
OY 2 ALPEDGSGAPFGHFKDKRRLCKNGGFLRIHPDGRVGVKESDPHIKIQLOAEENG 61
DB 11 ALTERG---LPNGTKKKRLKLYCSNGGHLRLIPDGKVDGTRDSQHIQLOLSAEDVG 67
OY 62 VVSINKGANCRRYLAMKEDRLASKCVLDECFEERLESNNMYTSRKYS--SWYVALK 119
DB 68 EYVIKSTAGQYLAQMTNGILYGSQLPGECLERLEENHNTYISKHADNMWVGXK 127
OY 120 RTGQYLGKRTGPGKAIIFLPM 142
DB 128 KNGSKLGRPTHYOKAIFLPL 150

```

RESULT 13  
Fgf1\_MOUSE

```

ID FGF1_MOUSE STANDARD; PRT; 155 AA.
AC P10935;
DT 01-JUL-1989 (Rel. 11, Created)
DT 01-JUL-1989 (Rel. 11, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF).
GN FGF1 OR FGF-1 OR FGFA.
OS Mus musculus (Mouse), and
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090, 10116;
RN
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES-Rat;
RX MEDLINE-89240051; PubMed-2470029;
RA Goodrich S., Yan G.C., Bahrendorf K., Mansson P.E.;
RT "The nucleotide sequence of rat heparin binding growth factor 1
RT (HBGF-1).";
RL Nucleic Acids Res. 17:2867-2867(1989).
RN
RN [2]
RP SEQUENCE FROM N.A.
RC SPECIES-Mouse;
RX MEDLINE-90201563; PubMed-2318343;
RA Hebert J.M., Basillio C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
RN
RN [3]
RP SEQUENCE FROM N.A.
RC SPECIES-Mouse;
RX MEDLINE-97128312; PubMed-8972905;
RA Madral F., Hackshaw K.V., Chiu I.M.;
RT "Cloning and characterization of the mouse Fgf-1 gene.";
RL Gene 179:231-236(1996).
RN
RN [4]
RP SEQUENCE FROM N.A.
RC SPECIES-Mouse; STRAIN-BALB/C;
RX MEDLINE-97094746; PubMed-8939980;
RA Alam K.Y., Frosthalm A., Hackshaw K.V., Evans J.E., Rotter A.,
RA Chiu I.M.;
RT "Characterization of the 1B promoter of fibroblast growth factor 1
RT and its expression in the adult and developing mouse brain.";
RL J. Biol. Chem. 271:30263-30271(1996).
CC
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC
CC -1- SUBUNIT: MONOMER.
CC
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC
CC EMBL: X14322; CAA32448.1; -
CC EMBL: M30641; AAA37618.1; -
CC DR EMBL: U36459; AAC52969.1; -
CC DR EMBL: U36457; AAC52969.1; JOINED.
CC DR EMBL: U36458; AAC52969.1; JOINED.
CC DR EMBL: U67610; AAC52907.1; -
CC DR PIR: S04147; S04147.
CC DR PIR: D37360; D37360.
CC DR TSSP: P05230; 1RML.
CC DR VGD: MGI:95515; Fgf1.
CC DR InterPro: IPR002209; HB/F-growthfact.
CC DR InterPro: IPR002348; IL1_HBGF.
CC DR Pfam: PF00167; FGF; 1.

```

DR PRINTS: PR00262; ILHBGF.  
 DR Produm: PD000831; HB/F-growthfact: 1.  
 DR SMART: SM00442; FGF: 1.  
 DR PROSITE: PS00247; HBGF\_FGF: 1.  
 DR Growth factor: Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 15  
 FT CHAIN 16 155  
 FT BINDING 24 28  
 FT BINDING 113 116  
 FT BINDING 155 AA; 17418 MW; 8880EF0FBA4161 CRC64;  
 SQ SEQUENCE

Query Match 49.7%; Score 391; DB 1; Length 155;  
 Best Local Similarity 55.9%; Pred. No. 9.1e-34;  
 Matches 76; Conservative 18; Mismatches 40; Indels 2; Gaps 1;

QY 13 PPGHFKDKRLCYKNGGFLRIHPDGRVDGVEKSDPHIKLOLAEEGCVSIKVCANR 72  
 DB 19 PLGNKKPKLLYCSNGHFLRILPDGTVDGTRDSQDHOIQLSASGEVYIKGTETGQ 78

QY 73 YLAKEDGRLASKCVTDECFEERLESNNNTYRSKYS--SWYVALKRTGQYLGKPT 130  
 DB 79 YLAMDTGGLLYGSQTPNECEFLERLENNHNTYTSKHAENWFGGLKNGSKRGKPT 138

QY 131 GPGOKAILFLPM SAKS 146  
 DB 139 HYGOKAILFLPMVS 154

RESULT 14  
 FGF1\_PIG STANDARD; PRT; 152 AA.  
 AC P20002;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Alpha-endothelial cell growth factor) (Fragment).  
 DE FGF1 OR FGF-1.  
 GN Sus scrofa (Pig).  
 OS Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.  
 OX NCBI\_TaxID=9823;  
 RN [1]  
 RC SEQUENCE FROM N.A.  
 RC TISSUE=Heart;  
 RX MEDLINE=92062117; PubMed=1719973;  
 RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;  
 RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (afgf) from porcine heart.";  
 RT Biochem. Biophys. Res. Commun. 180:853-859(1991).  
 RN [2]  
 RP SEQUENCE OF 22-41.  
 RX MEDLINE=89231704; PubMed=2714282;  
 RA Ouhlikler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,  
 RT Sharma H.S., Schaper W.;  
 RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";  
 RT Eur. J. Biochem. 181:67-73(1989).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-CC the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial

CC entries requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL: X60317; CAA42869.1; -.  
 DR PIR: S03954; S03954.  
 DR HSSP: P05230; 2AXM.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR Pfam: PF00167; FGF: 1.  
 DR Produm: PD000831; HB/F-growthfact: 1.  
 DR SMART: SM00442; FGF: 1.  
 DR PROSITE: PS00247; HBGF\_FGF: 1.  
 DR Growth factor: Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 15  
 FT CHAIN 16 >152  
 FT BINDING 22 >152  
 FT BINDING 113 116  
 FT CONFLICT 31 31  
 FT CONFLICT 39 39  
 FT NON\_TER 152 152  
 SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 49.4%; Score 389; DB 1; Length 152;  
 Best Local Similarity 56.8%; Pred. No. 1.4e-33;  
 Matches 75; Conservative 18; Mismatches 37; Indels 2; Gaps 1;

QY 13 PPGHFKDKRLCYKNGGFLRIHPDGRVDGVEKSDPHIKLOLAEEGCVSIKVCANR 72  
 DB 19 PLGNKKPKLLYCSNGHFLRILPDGTVDGTRDSQDHOIQLSASGEVYIKGTETGQ 78

QY 73 YLAKEDGRLASKCVTDECFEERLESNNNTYRSKYS--SWYVALKRTGQYLGKPT 130  
 DB 79 YLAMDTGGLLYGSQTPNECEFLERLENNHNTYTSKHAENWFGGLKNGSKRGKPT 138

QY 131 GPGOKAILFLPM 142  
 DB 139 HYGOKAILFLPL 150

RESULT 15  
 FGF1\_BOVIN STANDARD; PRT; 155 AA.  
 AC P03968;  
 DT 23-OCT-1986 (Rel. 02, Created)  
 DT 01-MAR-1989 (Rel. 10, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Prostathropin) (Endothelial cell growth factor beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF II).  
 DE FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.  
 GN Bos taurus (Bovine).  
 OS Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OX NCBI\_TaxID=9913;  
 RN [1]  
 RC SEQUENCE FROM N.A.  
 RC TISSUE=Retina;  
 RX MEDLINE=89083506; PubMed=3205724;  
 RA Halley C., Courtois Y., Laurent M.;  
 RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";  
 RT Nucleic Acids Res. 16:10913-10913(1988).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RP TISSUE=Retina;  
 RX MEDLINE=89078619; PubMed=2849564;  
 RA Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;  
 RT "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.";  
 RL FEBS Lett. 242:71-46(1988).  
 RN [3]  
 RP SEQUENCE OF 2-155.



Wed Dec 4 15:10:38 2002

us-09-886-856-2.rsp

Page 13

Db 79 FLAMDTDLGSLYGSOTPNNECLFLERLEENHYNTYISKHAEKHFVGLKNGRSKLGSPRT 138  
QY 131 GPGOKAILFLPMSAKS 146  
|||||:|  
Db 139 HFGOKAILFLPLPVSS 154

Search completed: December 4, 2002, 11:10:00  
Job time : 9.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OK protein - protein search, using sw model

Run on: December 4, 2002, 11:09:18 ; Search time 26.5 Seconds  
(without alignments)  
1135.203 Million cell updates/sec

Title: US-09-886-856-2

Perfect score: 787  
Sequence: 1 PALPDDGGSGAFPPGHFKDP.....GPKTGPGOKAILFLPMASKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 671580 segs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_21:\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mhc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	776	98.6	196	4 P78443	F78443 homo sapien
2	739	93.9	153	11 Q925A3	Q925A3 mus musculu
3	699	88.8	170	11 Q60487	Q60487 cavia porce
4	693	88.1	130	6 O77767	O77767 canis fami
5	665	84.5	155	13 Q90Y92	Q90Y92 cynops pyrr
6	588	74.7	155	13 Q80FR9	Q80FR9 fuqua rubrip
7	576	73.2	111	6 Q9BDX1	Q9BDX1 macaca mula
8	572	72.7	108	6 Q9N1S7	Q9N1S7 capreolus c
9	565	71.8	125	13 Q98TD8	Q98TD8 cynops pyrr
10	488	62.0	109	11 Q925A1	Q925A1 mus musculu
11	484	61.5	112	11 Q925A2	Q925A2 mus musculu
12	479.5	60.9	146	13 Q07659	Q07659 gallus gall
13	479	60.9	101	13 P79706	P79706 cynops pyrr
14	460	58.4	87	6 Q8RNP4	Q8RNP4 equus cabal
15	342	43.5	76	6 Q9NOV2	Q9NOV2 ovis aries
16	300	38.1	106	6 Q9N1S8	Q9N1S8 capreolus c

17	287	36.5	114	4 Q16443	Q16443 homo sapien
18	287	36.5	114	4 Q00527	Q00527 homo sapien
19	246	31.3	196	13 Q9YH31	Q9YH31 notophthalm
20	246	31.3	208	11 Q8R5L5	Q8R5L5 rattus norv
21	242	30.7	124	13 Q90X05	Q90X05 ambystoma m
22	237	30.1	245	11 Q8R5L9	Q8R5L9 rattus norv
23	228	29.0	206	13 Q9YGD8	Q9YGD8 oncorhynch
24	227	28.8	195	11 Q8R5L6	Q8R5L6 rattus norv
25	221	28.1	111	13 Q90X01	Q90X01 ambystoma m
26	216.5	27.5	201	13 Q80G59	Q80G59 ambystoma m
27	214	27.2	208	6 Q95L12	Q95L12 sus scrofa
28	210	26.7	191	13 Q9DFC9	Q9DFC9 brachydanio
29	207	26.3	208	13 Q9PYV1	Q9PYV1 xenopus lae
30	207	26.3	212	11 Q9ESL8	Q9ESL8 mus musculu
31	205.5	26.1	207	11 Q9ESL8	Q9ESL8 mus musculu
32	205.5	26.1	208	11 Q9ERQ5	Q9ERQ5 mus musculu
33	203	25.8	207	6 Q95K97	Q95K97 macaca fasc
34	203	25.8	212	11 Q9ESY9	Q9ESY9 rattus norv
35	202.5	25.7	212	13 Q42407	Q42407 gallus gall
36	198.5	25.2	301	5 Q8R8A3	Q8R8A3 clona savig
37	195.5	24.8	134	13 Q90X03	Q90X03 ambystoma m
38	193.5	24.6	213	6 Q9N1B9	Q9N1B9 ovis aries
39	193	24.5	208	4 Q96P59	Q96P59 homo sapien
40	191	24.3	62	6 Q8SP12	Q8SP12 equus cabal
41	191	24.3	162	11 Q8V179	Q8V179 rattus norv
42	188	23.9	112	13 Q90XP9	Q90XP9 ambystoma m
43	187	23.8	153	6 Q85Q73	Q85Q73 canis fami
44	186.5	23.7	186	6 Q95L47	Q95L47 mustela vis
45	186.5	23.7	237	13 Q91A16	Q91A16 gallus gall

#### ALIGNMENTS

RESULT 1  
ID P78443 PRELIMINARY: PRT: 196 AA.  
AC P78443;  
DT 01-MAY-1997 (TREMBLrel. 03, Created)  
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE 21 kDa basic fibroblast growth factor (BFGF).  
GN BFGF.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
OX NCBI\_Taxid-9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE-89184522; PubMed-2538817;  
RA Prats H., Kaghed M., Prats A.C., Klagsbrun M., Lelas J.M.,  
R Llaunay P., Chalou P., Tauber J.P., Analitic F., Smith J.A., Caput D.;  
RT "High molecular mass forms of basic fibroblast growth factor are  
initiated by alternative CUG codons";  
RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RN [2]  
RP SEQUENCE OF 81-168 FROM N.A.  
RX MEDLINE-93038590; PubMed-1417798;  
RA Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,  
R Thomas E.J.;  
RT "Reverse transcription with nested polymerase chain reaction shows  
expression of basic fibroblast growth factor transcripts in human  
granulosa and cumulus cells from in vitro fertilisation patients";  
RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).  
DB EMBL: J04513; AA52532.1; -  
DB EMBL: S47380; AAD13853.1; -  
DR HSP; P09038; 1BFF.  
DR InterPro: IPR002209; HB/F-growthfact.  
DR Pfam: PF00167; FGF; 1.  
DR PRINTS: PR00262; ILIHGF.  
DR PRODOM: PD000831; HB/F-growthfact; 1.  
DR SMART: SM00442; FGF; 1.

DR PROSITE: PS00247; HBGF\_FGF; 1.  
SQ SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match  
Best Local Similarity 98.6%; Score 776; DB 4; Length 196;  
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSGAPPPGHFKDPKRLKCKNGGFLLRHPDGRVDGYREKSDPHIKLQLAER 60  
DB 51 PALPEDGSGAPPPGHFKDPKRLKCKNGGFLLRHPDGRVDGYREKSDPHIKLQLAER 110  
QY 61 GVSISGVCANRYLAKKEDGRILASKCVTDECFEERLESNNNTYRSKYSWYALKR 120  
DB 111 GVSISGVCANRYLAKKEDGRILASKCVTDECFEERLESNNNTYRSKYSWYALKR 170  
QY 121 TGQYKLGSKTGPQOKAILFLPMSAKS 146  
DB 171 TGQYKLGSKTGPQOKAILFLPMSAKS 196

RESULT 2  
Q925A3 PRELIMINARY; PRT; 153 AA.

AC Q925A3;  
DT 01-DEC-2001 (TREMblrel. 19, Created)  
DT 01-DEC-2001 (TREMblrel. 19, Last sequence update)  
DE 01-JUN-2002 (TREMblrel. 21, Last annotation update)  
DE Fibroblast growth factor 2.  
GN FGF2.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA STRAIN=FVB/N;  
RA Dirke R.P., Griep A.E.;  
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
expressed in mouse embryos." to the EMBL/GenBank/DBJ databases.  
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL: A027551; AAK52308.1;  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR Pfam: PF00167; FGF\_1.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
SQ SEQUENCE 153 AA; 17024 MW; AD8163CD8FA2FAAB CRC64;

Query Match  
Best Local Similarity 93.9%; Score 739; DB 11; Length 153;  
Matches 140; Conservative 3; Mismatches 1; Indels 2; Gaps 2;

QY 1 PALPEDGSGAPPPGHFKDPKRLKCKNGGFLLRHPDGRVDGYREKSDPHIKLQLAER 60  
DB 10 PALPEDGSGA-AFPFGHFKDPKRLKCKNGGFLLRHPDGRVDGYREKSDPHIKLQLAER 68  
QY 61 GVSISGVCANRYLAKKEDGRILASKCVTDECFEERLESNNNTYRSKYSWYALKR 120  
DB 69 GVSISGVCANRYLAKKEDGRILASKCVTDECFEERLESNNNTYRSKYSWYALKR 127  
QY 121 TGQYKLGSKTGPQOKAILFLPMSAKS 146  
DB 128 TGQYKLGSKTGPQOKAILFLPMSAKS 153

RESULT 3  
Q60487 PRELIMINARY; PRT; 170 AA.

AC Q60487;  
DT 01-NOV-1996 (TREMblrel. 01, Created)  
DT 01-MAY-2000 (TREMblrel. 13, Last sequence update)  
DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)  
DE Fibroblast growth factor 2 (FGF-2) (Fibroblast growth factor, basic)  
DE (HBGF) (Heparin-binding growth factor 2) (HBGF-2) (Procatropin)  
DE (Prostatic growth factor) (Fragments).

GN FGF2.  
OS Cavia porcellus (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Hystriognathi; Cavidae; Cavia.  
OX NCBI\_TaxID=10141;  
RN [1]  
RP SEQUENCE OF 53-170 FROM N.A.  
RC TISSUE=PROSTATE;  
RA Ricciardelli C.;  
RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.

RN [2]  
RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.  
RX MEDLINE=89273588; PubMed-2730645;  
RA Sommer A., Moscatelli D., Rifkin D.B.;  
RT "An amino-terminaly extended and post-translationally modified form  
of a 25KD basic fibroblast growth factor";  
RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).

RN [3]  
RP PARTIAL SEQUENCE, AND METHYLATION.  
RX MEDLINE=91322114; PubMed-1713785;  
RA Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;  
RT "Direct evidence for methylation of arginine residues in high  
molecular weight forms of basic fibroblast growth factor";  
RL Cell Regul. 2:87-93(1991).

RN [4]  
RP CHARACTERIZATION.  
RC TISSUE=BRAIN;  
RX MEDLINE=87289686; PubMed-3475702;  
RA Moscatelli D., Joseph-Silverstein J., Manejias R., Rifkin D.B.;  
RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high  
molecular weight form of basic fibroblast growth factor";  
RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).

CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC  
FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC  
PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND  
HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR  
MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,  
PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS  
SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO  
ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFRL AND AT LEAST  
ONE HEPARAN SULFATE (BY SIMILARITY).  
CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS: 18 KDA AND 25 KDA  
(SHOWN HERE). MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION  
INITIATION SITES. BOTH FORMS ARE ACTIVE.  
CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE  
INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE  
SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF  
PARTIAL AMINO-ACID SEQUENCING.  
CC EMBL: L75974; AAB5394.1; ALT\_FRAME.  
CC DR HSSP: P09038; 1BLA.  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR InterPro: IPR002348; IIL\_HBGF.  
DR PRINTS: PR00263; IILHBGF.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
DR SMART: SM00442; FGF\_1.  
DR PROSITE: PS00247; HBGF\_FGF; 1.  
KW Growth factor; Mitogen; Vascularization; Heparin-binding;  
KW Alternative initiation; Methylation; Phosphorylation;  
KW Developmental protein.  
FT NON\_TER 1 1  
FT NON\_CONS 15 16  
FT CHAIN 170  
FT CHAIN 22 170  
FT INIT\_MET 22 22  
FT DOMAIN 11 14  
FT ON\_CONS 50 51  
FT TTE 61 63  
FT TTE 103 105  
FT LINDING 50 51  
FT LINDING 105 105

25 KDA BASIC FIBROBLAST GROWTH FACTOR.  
18 KDA BASIC FIBROBLAST GROWTH FACTOR.  
FOR 18 KDA FORM.  
POLY-ALA.  
CELL ATTACHMENT SITE (POTENTIAL).  
CELL ATTACHMENT SITE (POTENTIAL).  
HEPARIN (BY SIMILARITY).  
HEPARIN (BY SIMILARITY).

FT BINDING 143 159 HEPARIN (BY SIMILARITY).  
 FT MOD\_RES 4 4 METHYLATION (MONO- OR DI-).  
 FT MOD\_RES 6 6 METHYLATION (MONO- OR DI-).  
 FT MOD\_RES 8 8 METHYLATION (MONO- OR DI-).  
 FT MOD\_RES 88 88 PHOSPHORYLATION (BY SIMILARITY).  
 FT MOD\_RES 136 136 PHOSPHORYLATION (BY SIMILARITY).  
 SQ SEQUENCE 170 AA; 18354 MW; F36BDC736E3FEE CRC64;

Query Match 88.8%; Score 699; DB 11; Length 170;  
 Best Local Similarity 91.1%; Pred. No. 1.4e-68;  
 Matches 133; Conservative 2; Mismatches 5; Indels 6; Gaps 1;

QY 1 PALPDEGGGAFPPGHEKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 60  
 DB 31 PALPDEGGGAFAPGHEKDP-----NCGFFLRHPDGRVDGVREKSDPHIKLOLAER 84  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNYTRSKYSSWYALKR 120  
 DB 85 GVSISIKVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNYTRSKYSSWYALKR 144  
 QY 121 TGOYKLGPKTGPQOKALFLPMSAKS 146  
 DB 145 TGOYKLGSKTGPQOKALFLPMSAKS 170

## RESULT 4

077767 PRELIMINARY; PRT; 130 AA.

AC 077767;  
 DT 01-NOV-1998 (TREMblrel. 08, Created)  
 DT 01-NOV-1998 (TREMblrel. 08, Last sequence update)  
 DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (BFGF) (FGF-2) (Heparin-binding growth factor 2) (HBGF-2) (Prostatropin) (Prostatic growth factor) (Fragment).  
 GN BFGF.  
 OS Canis familiaris (Dog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 OX NCBI\_Taxid=9615;

RN [1]  
 RP TISSUE-ADRENAL GLAND;  
 RA Trocha O.A., Jacobs R.M., Lamaire J.;  
 RT "The role bFGF in canine Hemangioendothelioma."  
 RL Submitted (APR-1998) to the EMBL/Genbank/DBJ databases.  
 CC -1 FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
 CC -1 SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARAN SULFATE (BY SIMILARITY).  
 CC -1 SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC EMBL: AF060562; AAC35912.1; -

DR HSPF, P09038; 1BFG.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR Pfam: PF00167; FGF\_1.  
 DR PRINTS: PR00262; ILIHGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF\_1.  
 DR PROSITE: PS00247; HBGF\_FGF\_1.  
 KW Growth factor; Mitogen; Vascularization; Heparin-binding; Phosphorylation; Developmental protein.  
 FT SITE 21 23 CELL ATTACHMENT SITE (POTENTIAL).  
 FT SITE 63 65 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 10 11 HEPARIN (BY SIMILARITY).  
 FT BINDING 65 65 HEPARIN (BY SIMILARITY).

FT BINDING 103 119 HEPARIN (BY SIMILARITY).  
 FT MOD\_RES 48 48 PHOSPHORYLATION (BY SIMILARITY).  
 FT MOD\_RES 96 96 PHOSPHORYLATION (BY SIMILARITY).  
 FT MOD\_RES 130 130 PHOSPHORYLATION (BY SIMILARITY).  
 SQ SEQUENCE 130 AA; 14902 MW; 2190087EB878FAEA CRC64;

Query Match 88.1%; Score 693; DB 6; Length 130;  
 Best Local Similarity 99.2%; Pred. No. 4.6e-68;  
 Matches 129; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 17 FKDKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAERGVSSIKVCANRYLAM 76  
 DB 1 FKDKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAERGVSSIKVCANRYLAM 60  
 QY 77 KEDGRLLASKCVTDCEFFERLESNNYTRSKYSSWYALKRTGQYKLGPKTGPQOKA 136  
 DB 61 KEDGRLLASKCVTDCEFFERLESNNYTRSKYSSWYALKRTGQYKLGPKTGPQOKA 120  
 QY 137 ILFLPMSAKS 146  
 DB 121 ILFLPMSAKS 130

## RESULT 5

090Y92 PRELIMINARY; PRT; 155 AA.

AC 090Y92;  
 DT 01-DEC-2001 (TREMblrel. 19, Created)  
 DT 01-DEC-2001 (TREMblrel. 19, Last sequence update)  
 DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)  
 DE Fibroblast growth factor-2.  
 GN FGF-2.  
 OS Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Caudata; Salamandridae; Cynops.  
 OX NCBI\_Taxid=8330;

RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Susaki K., Nakamura K., Chiba C., Saito T.;  
 RT "Expression of FGF2 during newt retinal development and regeneration."  
 RL Submitted (JUL-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AB064664; BAB63249.1; -  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR Pfam: PF00167; FGF\_1.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; UNKNOWN\_1.  
 SQ SEQUENCE 155 AA; 17278 MW; 2B58305838AB8D9 CRC64;

Query Match 84.5%; Score 665; DB 13; Length 155;  
 Best Local Similarity 85.6%; Pred. No. 6.6e-65;  
 Matches 125; Conservative 7; Mismatches 14; Indels 0; Gaps 0;

QY 1 PALPDEGGGAFPPGHEKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 60  
 DB 10 PALPDEGGGAFPPGHEKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 69  
 QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNYTRSKYSSWYALKR 120  
 DB 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNYTRSKYSSWYALKR 129  
 QY 121 TGOYKLGPKTGPQOKALFLPMSAKS 146  
 DB 130 TGOYKLGSKTGPQOKALFLPMSAKS 155

## RESULT 6

080FR9 PRELIMINARY; PRT; 155 AA.

AC 080FR9;  
 DT 01-JUN-2002 (TREMblrel. 21, Created)  
 DT 01-JUN-2002 (TREMblrel. 21, Last sequence update)  
 DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)



```

DE Basic fibroblast growth factor.
GN FGF2.
OS Fugu rubripes (Japanese pufferfish) (Takifugu rubripes).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC Acanthomorphi; Acanthopterygii; Percomorpha; Tetraodontiformes;
OC Tetraodontidae; Takifugu.
OX NCBI_TaxID=31033;
RN [1]
RP SEQUENCE FROM N.A.
RA Botcherby M.R.;
RT "Comparative vertebrate genomic sequence analysis studies based on
RT Fugu rubripes."
RL Thesis (2001), University College London, London, United Kingdom.
DR EMBL; AJ426040; CAB19830.1; -.
SQ SEQUENCE 155 AA; 17113 MW; AFEEL2DBDC78FB8E CRC64;

Query Match 74.7%; Score 588; DB 13; Length 155;
Best Local Similarity 77.2%; Pred. No. 1,8e-56;
Matches 112; Conservative 4; Mismatches 29; Indels 0; Gaps 0;

QY 1 PALPEDGGGAFPPGHFDPKRLCKNGFRLRIHPDGRVGVREKSDPHIKLOLAER 60
Db 10 PSTPEDGGSGFPSPGSEFDPKRLCKNGFRLRISDGAVDGTRKTPHIKLOLATSV 69
QY 61 GVSISGVCANRYLAMKEDGRLASCVTDECFEERLESNNYNTYRSKYSWYVALKR 120
Db 70 GEVVIKGVCANRYLAMNDGRFLGKMRATDECHFLERLESNNYNTYRSKYPNMFVGLTR 129
QY 121 TGQYKLGPKRTGPGKALIFLPMSAK 145
Db 130 TGNKXSGTKGTGPGKALIFLPMSAK 154

RESULT 7
Q9BDX1 PRELIMINARY; PRT; 111 AA.
ID Q9BDX1;
AC Q9BDX1;
DT 01-JUN-2001 (TREMBlrel. 17, Created)
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)
DE Basic fibroblast growth factor (Fragment).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecinae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Sekhon H.S., Keller J.K., Spindel E.R.;
RT "Alterations in Collagen and Elastin Gene Expression in Fetal
RT Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A
RT Possible Role of alpha7 Nicotinic Acetylcholine Receptor in Persistent
RT Pulmonary Hypertension."
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF231270; AAK37962.1; -.
DR HSSP; P09038; 2FGF.
DR InterPro; IPR002209; HB/F-growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F-growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match 73.2%; Score 576; DB 6; Length 111;
Best Local Similarity 98.2%; Pred. No. 2.4e-55;
Matches 109; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 34 IHPDGRVGVREKSDPHIKLOLAERGVVSIGVCANRYLAMKEDGRLASCVTDEC 93

```

```

Db 1 IHPDGRVGVREKSDPHIKLOLAERGVVSIGVCANRYLAMKEDGRLASCVTDEC 93
QY 94 FFEERLESNNYNTYRSKYSWYVALKRTGQYKLGPKTGPQKALIFLPMSA 144
Db 61 FFEERLESNNYNTYRSKYSWYVALKRTGQYKLGPKTGPQKALIFLPMSA 111

RESULT 8
Q9N1S7 PRELIMINARY; PRT; 108 AA.
ID Q9N1S7;
AC Q9N1S7;
DT 01-OCT-2000 (TREMBlrel. 15, Created)
DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)
DE Basic fibroblast growth factor (Fragment).
OS Capreolus capreolus (roe deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;
OC Cervidae; Odocoileinae; Capreolus.
OX NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RA Tissue-Testis;
RC MEDLINE-20532861; PubMed-11078967;
RX Wagener A., Biotner S., Goritz F., Fickel J.;
RT "Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus)."
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152587; AAF73226.1; -.
DR HSSP; P09038; 4FGF.
DR InterPro; IPR002209; HB/F-growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F-growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match 72.7%; Score 572; DB 6; Length 108;
Best Local Similarity 100.0%; Pred. No. 6.3e-55;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 33 RIHPDGRVGVREKSDPHIKLOLAERGVVSIGVCANRYLAMKEDGRLASCVTDEC 92
Db 1 RIHPDGRVGVREKSDPHIKLOLAERGVVSIGVCANRYLAMKEDGRLASCVTDEC 60
QY 93 FFEERLESNNYNTYRSKYSWYVALKRTGQYKLGPKTGPQKALIFLPMSA 140
Db 61 FFEERLESNNYNTYRSKYSWYVALKRTGQYKLGPKTGPQKALIFLPMSA 108

RESULT 9
Q98TDS PRELIMINARY; PRT; 125 AA.
ID Q98TDS;
AC Q98TDS;
DT 01-JUN-2001 (TREMBlrel. 17, Created)
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)
DE Fibroblast growth factor-2 (Fragment).
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Phibia; Batrachia; Caudata; Salamandridae; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Zuno N., Hayashi T., Kondoh H., Okamoto M.;
RT Cynops fibroblast growth factor-2."

```

Submitted (OCT-2000) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AB049625; BAB40835.1; -  
 DR HSP: P09038; 1BFF.  
 DR InterPro: IPR002209; HB/F\_growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF. 1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR PRODOM: PD000831; HB/F\_growthfact; 1.  
 DR SMART: SMO0442; FGF. 1.  
 DR PROSITE: PS00247; HBGF\_FGF. 1.  
 DR NON\_TER 1  
 FT SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;  
 SQ

Query Match 71.8%; Score 565; DB 13; Length 125;  
 Best Local Similarity 87.1%; Pred. No. 4,5e-54;  
 Matches 108; Conservative 6; Mismatches 10; Indels 0; Gaps 0;

OY 23 LCKCKNGFRLRHPDGRVGVREKSDPHIKLOLAERGVSIVKVCANRYLAMKEDGRL 82  
 DB 2 LCKCKNGFRLRNSDGRVGVAREKSDSYIKLOLAERGVSIVKVCANRYLAMKEDGRL 61  
 OY 83 LASKCVTDECFEERLESNNYNTSRKYSWYVALKRTGPKTGPGRKAILFLPM 142  
 DB 62 MALKWTIDECFFERLESNNYNTSRKYSWYVALKRTGPKTGPGRKAILFLPM 121

OY 143 SAKS 146  
 DB 122 SAKS 125

RESULT 10  
 O925A1 PRELIMINARY; PRT; 109 AA.  
 AC 0925A1;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor 2.  
 GN FGF2.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OC NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=FVB/N;  
 RA Dirks R.P., Griep A.E.;  
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are expressed in mouse embryos."  
 RL Submitted (FEB-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AY027558; AAK52310.1;  
 DR InterPro: IPR002209; HB/F\_growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF. 1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR PRODOM: PD000831; HB/F\_growthfact; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; UNKNOWN\_1.  
 DR SEQUENCE 109 AA; 12388 MW; 61074ADE3303C860 CRC64;  
 SQ

Query Match 62.0%; Score 488; DB 11; Length 109;  
 Best Local Similarity 97.9%; Pred. No. 1e-45;  
 Matches 94; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 51 IKLOLAERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTSRK 110  
 DB 14 IKLOLAERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTSRK 73  
 OY 111 YSSWYVALKRTGPKTGPGRKAILFLPM 146  
 DB 74 YSSWYVALKRTGPKTGPGRKAILFLPM 109

RESULT 11

O925A2 PRELIMINARY; PRT; 112 AA.  
 AC 0925A2;  
 DT 01-DEC-2001 (TREMBLrel. 19, Created)  
 DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor 2.  
 GN FGF2.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OC NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=FVB/N;  
 RA Dirks R.P., Griep A.E.;  
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are expressed in mouse embryos."  
 RL Submitted (FEB-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AY027557; AAK52309.1;  
 DR InterPro: IPR002209; HB/F\_growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF. 1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR PRODOM: PD000831; HB/F\_growthfact; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; UNKNOWN\_1.  
 DR SEQUENCE 112 AA; 12725 MW; B00557ABE0257CCB CRC64;  
 SQ

Query Match 61.5%; Score 484; DB 11; Length 112;  
 Best Local Similarity 97.9%; Pred. No. 2,8e-45;  
 Matches 93; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 52 KLOLAERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTSRK 111  
 DB 18 KLOLAERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTSRK 77  
 OY 112 SSWYVALKRTGPKTGPGRKAILFLPM 146  
 DB 78 SSWYVALKRTGPKTGPGRKAILFLPM 112

RESULT 12  
 O07659 PRELIMINARY; PRT; 146 AA.  
 AC 007659;  
 DT 01-NOV-1996 (TREMBLrel. 01, Created)  
 DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor.  
 GN BFGF.  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 OC NCBI\_TaxID=9031;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC MEDLINE=93246053; PubMed=7683281;  
 RA Borja A.Z., Zeller R., Meljers C.;  
 RT "Expression of alternatively spliced bfgf first coding exons and antisense mRNAs during chicken embryogenesis."  
 RL dev. Biol. 157:110-118(1993).  
 RN [2]  
 RP SEQUENCE OF 52-85 FROM N.A.  
 RX MEDLINE=90382254; PubMed=2401202;  
 RA Mitani E., Greenbaum Y., Shohat H., Ziv T.;  
 RT "Fibroblast growth factor during mesoderm induction in the early chick embryo."  
 RL Development 109:387-393(1990).  
 DR EMBL: M95706; AAA48616.1;  
 DR EMBL: X56804; CAA40139.1;  
 DR HSP: P09038; 2BFF.  
 DR InterPro: IPR002209; HB/F\_growthfact.

```
DR      iterPro; IPR002209; HB/F_growthInact..
DR      iterPro; IPR002348; IL1_HBGF.
DR      'fam; PF00167; EGF; 1.
```

DR PRINTS; PR00262; ILIHGF.  
 DR PRODOM; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1 1  
 FT NON\_TER 76 76  
 SQ SEQUENCE 76 AA: 8796 MW: 7D984E2F97453B20 CRC64;

Query Match 43.5%; Score 342; DB 6; Length 76;  
 Best Local Similarity 100.0%; Pred. No. 6e-30;  
 Matches ,65; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 48 DPHIKLOAERGVYSIKVCANRYLAKEDGRLASKCVTDECFEERLESNNYNTYR 107  
 ||||||||||||||||||||||||||||||||||||||||||||||||||||  
 DB 1 DPHIKLOAERGVYSIKVCANRYLAKEDGRLASKCVTDECFEERLESNNYNTYR 60  
 OY 108 SRKYS 112  
 ||||||  
 DB 61 SRKYS 65

Search completed: December 4, 2002, 11:12:12  
 Job time : 27.5 secs

091886856

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:06:33 ; Search time 32 Seconds  
(without alignments)  
607.956 Million cell updates/sec

Title: US-09-886-856-4

Perfect score: 785  
Sequence: 1 PALPEDGCGSAPPPGHRKDP.....GSKTPGCKAILFLPMASAKS 146

Scoring table:  
BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : Listing first 45 summaries

1: /SID52/gcgdata/geneseq/geneeqp-emb1/AA1980.DAT:\*  
2: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1981.DAT:\*  
3: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1982.DAT:\*  
4: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1983.DAT:\*  
5: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1984.DAT:\*  
6: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1985.DAT:\*  
7: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1986.DAT:\*  
8: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1987.DAT:\*  
9: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1988.DAT:\*  
10: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1989.DAT:\*  
11: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1990.DAT:\*  
12: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1991.DAT:\*  
13: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1992.DAT:\*  
14: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1993.DAT:\*  
15: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1994.DAT:\*  
16: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1995.DAT:\*  
17: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1996.DAT:\*  
18: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1997.DAT:\*  
19: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1998.DAT:\*  
20: /SID52/gcgdata/geneeq/geneeqp-emb1/AA1999.DAT:\*  
21: /SID52/gcgdata/geneeq/geneeqp-emb1/AA2000.DAT:\*  
22: /SID52/gcgdata/geneeq/geneeqp-emb1/AA2001.DAT:\*  
23: /SID52/gcgdata/geneeq/geneeqp-emb1/AA2002.DAT:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	785	100.0	146	9 AAP82579	Human basic fibrob
2	785	100.0	146	13 AAR25423	bFGF derivative.
3	785	100.0	146	21 AAY87847	Human FGF-2 protei
4	785	100.0	146	22 AAE11974	Human fibroblast g
5	785	100.0	146	22 AAG62612	Human basic insuli
6	785	100.0	146	23 AAE21683	Human fibroblast g
7	785	100.0	146	23 AAU12079	Human fibroblast g
8	785	100.0	148	23 AAR22233	bFGF truncated at
9	785	100.0	153	16 AAR71414	Human basic fibrob
10	785	100.0	154	16 AAR71413	Human basic fibrob

11	785	100.0	154	17 AAR89473	Human basic fibrob
12	785	100.0	154	23 AAB09967	Human basic fibrob
13	785	100.0	154	23 ABB83829	Human bFGF related
14	785	100.0	155	8 AAP70301	Sequence of human
15	785	100.0	155	10 AAP94038	Human basic fibrob
16	785	100.0	155	11 AAR05314	Human basic fibrob
17	785	100.0	155	13 AAR22232	bFGF truncated at
18	785	100.0	155	14 AAR40159	Human bFGF peptide
19	785	100.0	155	15 AAR53270	glu3,5 bFGF. Hom
20	785	100.0	155	16 AAR80777	Fibroblast growth
21	785	100.0	155	16 AAR70204	Human bFGF. Homo
22	785	100.0	155	16 AAR70823	FGF-2. Homo sapie
23	785	100.0	155	18 AAW33338	Human fibronectin
24	785	100.0	155	18 AAW19595	Biologically activ
25	785	100.0	155	19 AAY05456	Fibronectin recept
26	785	100.0	155	19 AAW75712	Fibroblast growth
27	785	100.0	155	19 AAW71386	S5V mutant of fibr
28	785	100.0	155	19 AAW71379	18 kDa form of fib
29	785	100.0	155	19 AAW53023	Fibroblast growth
30	785	100.0	155	20 AAW99380	18 kD isoform of h
31	785	100.0	155	21 AAB10298	Fibroblast growth
32	785	100.0	155	21 AAY66873	Human fibroblast g
33	785	100.0	155	21 AAY66885	Human fibroblast g
34	785	100.0	155	21 AAY66893	Human fibroblast g
35	785	100.0	155	21 AAY90411	FGF-2 (bFGF), SEQ
36	785	100.0	155	21 AAY90448	Human FGF-2 (bFGF)
37	785	100.0	155	21 AAY32334	Human fibroblast g
38	785	100.0	155	22 AAG65648	Human fibroblast g
39	785	100.0	155	22 AAE11976	Human fibroblast g
40	785	100.0	155	22 AAB85813	Human fibroblast g
41	785	100.0	155	22 AAB99918	Human FGF-2 protei
42	785	100.0	155	22 AAG64317	Human FGF-2 protei
43	785	100.0	155	22 AAG64847	Heart muscle cell
44	785	100.0	155	22 AAB84597	Amino acid sequenc
45	785	100.0	155	22 AAY72909	Truncated form of

## ALIGNMENTS

RESULT 1  
AAP82579  
ID AAP82579 standard; protein; 146 AA.  
XX  
AC AAP82579;  
XX  
DT 02-NOV-1990 (first entry)  
XX  
DE Human basic fibroblast growth factor.  
XX  
XX Basic fibroblast growth factor; anticancer agent; bFGF.  
KM Homo sapiens.  
XX  
OS Homo sapiens.  
XX  
XX EP288687-A.  
XX  
PD 02-NOV-1988.  
XX  
XX  
PF 01-MAR-1988; 88EP-0103047.  
XX  
XX 03-MAR-1987; 87JP-0049759.  
PR 26-AUG-1987; 87JP-0211599.  
PR 26-JAN-1988; 88JP-0016260.  
XX  
PA (TAKE ) TAKEDA CHEMICAL IND KK.  
XX  
XX Iwane M, Kurokawa T, Igarashi K;  
PI WPI; 1988-308739/44.  
DR N-PSDB; AAN82192.  
XX  
XX New monoclonal antibodies specific for basic fibroblast growth  
PT factor - used in immunoassay, purification, and as anticancer agent.

XX Disclosure; ; p; English.

XX DNA encoding the protein was isolated from a cDNA library prep.

CC from mRNA from human foreskin derived primary culture cell. It

CC can be used to produce recombinant hBFGF for prodn. of Mabs

CC specific for bFGF (do not cross react with acidic FGF). High

CC purity bFGF is also useful for promoting healing of burns and

CC wounds and, due to its neovascularising action, to treat thrombosis

CC and arteriosclerosis.

CC See also AAN82193 and AAN82194.

XX

SO Sequence 146 AA;

Query Match 100.0%; Score 785; DB 9; Length 146;

Best Local Similarity 100.0%; Pred. No. 1.8e-75;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFLRIHPDGRVGVREKSPHIKIQQAER 60

DB 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFLRIHPDGRVGVREKSPHIKIQQAER 60

OY 61 GVSISIKVCANRYLAMKEDGRILASKCYTDECFEERLESNNYNTYRSRKYTSWYALKR 120

DB 61 GVSISIKVCANRYLAMKEDGRILASKCYTDECFEERLESNNYNTYRSRKYTSWYALKR 120

OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 2

AAR25423

ID AAR25423 standard; protein; 146 AA.

AC AAR25423;

XX 06-JAN-1993 (first entry)

DT 06-JAN-1993 (first entry)

DE bFGF derivative.

XX

KW Human: basic fibroblast growth factor; recombinant; wound healing;

KW revascularise; regenerate; neural tissue.

XX

OS Homo sapiens.

XX

XX Key Location/Qualifiers

FT Modified-site 69 /note- "derivatised with an agent capable of forming

FT Modified-site 89 a covalent S-C bond with Cys"

FT Modified-site 89 /note- "derivatised with an agent capable of

FT Modified-site 89 forming a covalent S-C bond with Cys"

XX

PN EP494664-A.

XX

XX 15-JUL-1992.

PD 15-JUL-1992.

XX

XX 09-JAN-1992; 92EP-0100257.

PF 09-JAN-1992; 92EP-0100257.

XX

XX 09-JAN-1991; 91GB-0000381.

PR 09-JAN-1991; 91GB-0000381.

XX

PA (FARM ) FARMITALIA ERBA SRL CARLO.

XX

PI Bertolero F, Caccia P, Calet G, Nitti G;

XX

DR WPI; 1992-235730/29.

XX

XX Derived basic fibroblast growth factor - for treating ulcers,

PT regenerating damaged neural tissue, aiding tissue transplant or

PT bone graft and revascularising ischaemic tissue

XX

PS Claim 2; Page 3; 20pp; English.

XX The sequence is that of a recombinant human basic fibroblast growth

CC factor which has at least one of the four cysteine residues (pref.

CC Cys 69 and Cys 87) derivatised with an agent able to form a covalent

CC S-C bond with Cys. Typical agents include iodoacetic acid,

CC haloacetamide, alkyl tetrahalonates, alkyl methanethiosulphonates

CC and 1-6c alkyldisulphones. The derivatised bFGF is used to accelerate

CC the healing of wounds (including burns, ulcers, transplants, and

CC bone grafts), to revascularise ischaemic tissue or to regenerate

CC damaged neural tissue. Compared with native bFGF the recombinant

CC derivatised bFGF has better biological activity and stability (esp.

CC not aggregating by dimer formation) and is also easier to isolate.

XX

SO Sequence 146 AA;

Query Match 100.0%; Score 785; DB 13; Length 146;

Best Local Similarity 100.0%; Pred. No. 1.8e-75;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFLRIHPDGRVGVREKSPHIKIQQAER 60

DB 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFLRIHPDGRVGVREKSPHIKIQQAER 60

OY 61 GVSISIKVCANRYLAMKEDGRILASKCYTDECFEERLESNNYNTYRSRKYTSWYALKR 120

DB 61 GVSISIKVCANRYLAMKEDGRILASKCYTDECFEERLESNNYNTYRSRKYTSWYALKR 120

OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 3

AA87847

ID AA87847 standard; protein; 146 AA.

AC AA87847;

XX 01-SEP-2000 (first entry)

DT 01-SEP-2000 (first entry)

DE Human FGF-2 protein.

XX

KW FGF-2; fibroblast growth factor; cardiact; treatment; angiogenesis;

KW coronary artery disease; myocardial infarction injury; human.

XX

OS Homo sapiens.

XX

XX Key Location/Qualifiers

FT Modified-site 69 /note- "derivatised with an agent capable of forming

FT Modified-site 89 a covalent S-C bond with Cys"

FT Modified-site 89 /note- "derivatised with an agent capable of

FT Modified-site 89 forming a covalent S-C bond with Cys"

XX

PN WO200021548-A2.

XX

XX 20-APR-2000.

PD 20-APR-2000.

XX

XX 13-OCT-1999; 99WO-US22936.

PF 13-OCT-1999; 99WO-US22936.

XX

XX 13-OCT-1998; 98US-0104103.

PR 13-OCT-1998; 98US-0104103.

XX

PA (CHIR ) CHIRON CORP.

XX

PA (WHIT/) WHITEHOUSE M J.

XX

PI Kavanaugh MM;

XX

DR WPI; 2000-317840/27.

XX

XX Novel unit dose comprising fibroblast growth factor, its angiogenically

PT active fragment or muten for inducing cardiac angiogenesis, treating

PT coronary artery disease and reducing post myocardial infarction injury

PT

XX aim 1; Page 56-57; 67pp; English.

PS is invention describes a novel unit dose (I), of fibroblast growth

CC factor (FGF) comprising 0.008-6.1 mg of a mammalian FGF comprising

CC sequence of 140 ((II) and (III)) 146 ((IV) and (V)) 205 ((VI), 266

CC (VII), 207 ((VIII) and (XI)), 215 ((IX), and 208 ((X) amino acids (aa)),

CC given in the specification, its angiogenically active fragment or  
CC mutein. The product of the invention has angiogenic and cardiac  
CC activity. (1) is used for treating a human patient for coronary artery  
CC disease, and inducing angiogenesis in the human heart. (1) further  
CC provides an adjunct for reducing post myocardial infarction injury in  
CC humans. The unit dose provides the human patient with a rapid and  
CC therapeutic cardiac angiogenesis sufficient to obviate surgical  
CC intervention and results in an superior increase in the treated  
CC patients' exercise tolerance time (ETT). It also provides a safe and  
CC therapeutically efficacious treatment for the patients with coronary  
CC artery disease that lasts at least 6 months before a further treatment  
CC is needed. The method provides superior increase of 1.5-2 minutes in  
CC the treated patient's (ETT), compared to an increase of 30 seconds for  
CC current modes treatment. This sequence represents the human FGF-2 protein  
CC fragment described in the method of the invention.

XX  
SQ Sequence 146 AA;  
Query Match 100.0%; Score 785; DB 21; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.8e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLQAEER 60  
DB 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLQAEER 60

OY 61 GVSIKGYCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSKRYTSYVALKR 120  
DB 61 GVSIKGYCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSKRYTSYVALKR 120

OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 4  
AAE11974  
ID AAE11974 standard; Protein: 146 AA.  
XX AAE11974;  
AC AAE11974;  
DE 18-DEC-2001 (first entry)  
XX  
DE Human fibroblast growth factor-2 (FGF-2) #1.  
XX  
KW Human; therapy; erectile dysfunction; fibroblast growth factor-2; FGF-2;  
KW epidermal growth factor; EGF; platelet derived growth factor; PDGF;  
KW vascular endothelial growth factor; VEGF; tissue growth factor; TGF;  
KW Impotence; vasotrophic.  
XX  
OS Homo sapiens.  
XX  
PN WO200168125-A2.  
XX  
PD 20-SEP-2001.  
XX  
PE 09-MAR-2001; 2001MO-US07702.  
XX  
PR 10-MAR-2000; 2000US-188480P.  
PR 11-MAY-2000; 2000US-203415P.  
XX  
PA (CHIR ) CHIRON CORP.  
XX  
PI Whitehouse MJ;  
XX  
DR WPI; 2001-616273/71.  
DR N-PSDB; AAD19521.  
XX  
PT Treating or preventing erectile dysfunction, comprises administering  
PT growth factor, particularly fibroblast growth factor to blood vessels  
PT in the penis, groin or leg  
XX  
PS Claim 6; Page 32; 35pp; English.

XX  
CC The present invention relates to a method for treating or preventing  
CC erectile dysfunction, comprising administering a fibroblast growth  
CC factor (FGF), epidermal growth factor (EGF), platelet derived growth  
CC factor (PDGF), vascular endothelial growth factor (VEGF) or tissue  
CC growth factor (TGF). The invention is used to treat or prevent erectile  
CC dysfunction, or impotence. The present sequence is a human FGF-2  
CC protein.

XX  
SQ Sequence 146 AA;  
Query Match 100.0%; Score 785; DB 22; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.8e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLQAEER 60  
DB 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLQAEER 60

OY 61 GVSIKGYCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSKRYTSYVALKR 120  
DB 61 GVSIKGYCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSKRYTSYVALKR 120

OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 5  
AAG62612  
ID AAG62612 standard; Protein: 146 AA.  
XX AAG62612;  
AC AAG62612;  
DE 06-SEP-2001 (first entry)  
XX  
DE Human basic insulin-like growth factor 1.  
XX  
KW Human; insulin-like growth factor 1; IGF-1; neuronal damage prevention;  
KW central nervous system insult; hypothermia; neuroprotective;  
KW Ischaemia cerebrovascular disease.  
XX  
OS Homo sapiens.  
XX  
PN WO200137855-A2.  
XX  
PD 31-MAY-2001.  
XX  
PE 26-OCT-2000; 2000MO-US41591.  
XX  
PR 27-OCT-1999; 99US-0161798.  
XX  
PA (CHIR ) CHIRON CORP.  
XX  
PI Gluckman PD, Gunn AJ;  
XX  
DR WPI; 2001-355748/37.  
XX  
PT Preventing or treating neuronal damage of the central nervous system,  
PT comprises modulating the cerebral temperature and administering a  
PT neurological therapeutic agent  
XX  
PS Disclosure; Page 40-41; 41pp; English.  
XX  
CC The present invention describes a method of preventing or treating  
CC neuronal damage following a central nervous system insult, involving  
CC modulating the cerebral temperature and administering a neurologic  
CC therapeutic agent. The agent may be a growth factor, such as fibroblast  
CC growth factor (FGF) or insulin-like growth factor (IGF). The method is  
CC particularly useful in the treatment of ischaemia cerebrovascular  
CC disease. The present sequence is the human basic IGF protein.

XX  
SQ Sequence 146 AA;

Query Match 100.0%; Score 785; DB 22; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.8e-75;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGGAFPPGHFKDPKRLKCKNGGFLRIHPDGRVGVREKSDPHIKLOQAER 60  
 |||  
 DB 1 PALPEDGSGGAPPFGHFKDPKRLKCKNGGFLRIHPDGRVGVREKSDPHIKLOQAER 60  
 |||  
 QY 61 GVSISIKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSKRTYSWVALKR 120  
 |||  
 DB 61 GVSISIKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSKRTYSWVALKR 120  
 |||  
 QY 121 TGOYKLGSKTGPCKAIIFLPMSAKS 146  
 |||  
 DB 121 TGOYKLGSKTGPCKAIIFLPMSAKS 146  
 |||

RESULT 6  
 AAE21683  
 ID AAE21683 standard; Protein: 146 AA.  
 AC AAE21683;  
 XX  
 DF 16-JUL-2002 (first entry)  
 XX  
 DE Human fibroblast growth factor-2 (FGF-2) partial protein.  
 XX  
 KW Human; pharmaceutical composition; fibroblast growth factor; FGF;  
 KW tissue regeneration; therapy; wound; ischaemic heart disease; stroke;  
 KW bone fracture healing; vulnery; cerebroprotective; vasotropic.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200217956-A2.  
 XX  
 PD 07-MAR-2002.  
 XX  
 PF 31-AUG-2001; 2001WO-US27209.  
 XX  
 PR 31-AUG-2000; 2000US-229238P.  
 XX  
 PA (CHIR ) CHIRON CORP.  
 XX  
 PI Hageman RV, Shirley BA, Bajwa KK;  
 DR WPI: 2002-329732/36.  
 DR N-PSDB; AAD34054.  
 XX  
 PT Stabilized pharmaceutical composition comprising fibroblast growth  
 PT factor or its variant, and reducing agent to inhibit oxidation of  
 PT fibroblast growth factor, useful for promoting wound healing and  
 PT treating stroke  
 PS  
 PS Disclosure: Page 47; 52pp; English.  
 XX  
 CC The invention relates to pharmaceutical composition comprising stabilised  
 CC fibroblast growth factor (FGF) or its variant. Methods for increasing  
 CC storage stability of FGF or its variant in a liquid or lyophilised  
 CC composition is also provided. The method is useful for increasing storage  
 CC stability of a pharmaceutical composition comprising FGF or its variant  
 CC which becomes oxidised during storage. The pharmaceutical composition is  
 CC useful for promoting tissue regeneration, treating wounds, ischaemic  
 CC heart diseases, stroke and is used for bone fracture healing. The present  
 CC sequence is human FGF-2 partial protein.  
 XX  
 SQ Sequence 146 AA;  
 Query Match 100.0%; Score 785; DB 23; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 1.8e-75;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QV 1 PALPEDGSGGAPPFGHFKDPKRLKCKNGGFLRIHPDGRVGVREKSDPHIKLOQAER 60

DB 1 PALPEDGSGGAFPPGHFKDPKRLKCKNGGFLRIHPDGRVGVREKSDPHIKLOQAER 60  
 |||  
 QY 61 GVSISIKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSKRTYSWVALKR 120  
 |||  
 DB 61 GVSISIKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSKRTYSWVALKR 120  
 |||  
 QY 121 TGOYKLGSKTGPCKAIIFLPMSAKS 146  
 |||  
 DB 121 TGOYKLGSKTGPCKAIIFLPMSAKS 146  
 |||

RESULT 7  
 AAU12079  
 ID AAU12079 standard; Protein: 146 AA.  
 AC AAU12079;  
 XX  
 DT 09-APR-2002 (first entry)  
 XX  
 DE Human fibroblast growth factor-2 (FGF-2).  
 XX  
 KW Human; peripheral artery disease; PAD; fibroblast growth factor-2;  
 KW FGF-2; peak walking time; ankle branchial index; body pain;  
 KW stair climbing ability; claudication; critical limb ischaemia; stroke;  
 KW cardiovascular disorder; diabetes; dyslipidaemia; hypertension.  
 XX  
 OS Homo sapiens.  
 XX  
 PN WO200198346-A2.  
 XX  
 PD 27-DEC-2001.  
 XX  
 PF 22-JUN-2001; 2001WO-US19978.  
 XX  
 PR 22-JUN-2000; 2000US-213504P.  
 PR 26-JAN-2001; 2001US-264572P.  
 PR 16-MAR-2001; 2001US-276548P.  
 PR 21-JUN-2001; 2001US-0886856.  
 XX  
 PA (CHIR ) CHIRON CORP.  
 XX  
 PI Whitehouse MJ;  
 DR WPI: 2002-147794/19.  
 DR N-PSDB; AAS20934.  
 XX  
 PT Treating peripheral artery disease, for improving peak walking time and  
 PT ankle branchial index with intermittent claudication in a patient,  
 PT comprises administering fibroblast growth factor in two doses at one  
 PT hour interval  
 PS  
 PS Claim 11; Fig 3; 99pp; English.  
 XX  
 CC The present invention relates to compositions and methods for treating  
 CC peripheral artery disease. The method comprises administering fibroblast  
 CC growth factor-2 (FGF-2) to a patient in two doses, where a single dose  
 CC is administered into each leg of the patient within a one hour period.  
 CC FGF-2 is useful for treating peripheral artery disease, improving  
 CC peak walking time with intermittent claudication, improving ankle  
 CC branchial index with intermittent claudication, reducing body pain,  
 CC improving stair climbing ability and reducing the severity of the  
 CC claudication. FGF-2 is also useful for treating or preventing  
 CC peripheral artery disease (PAD) including claudication and critical  
 CC limb ischaemia, and even those suffering from a wide spectrum of related  
 CC clinical ailments including coronary artery disease (CAD), myocardial  
 CC infarctions, stroke, diabetes, dyslipidaemias, hypertension and patients  
 CC who have had surgical or catheter-based revascularisations. The present  
 CC sequence represents human FGF-2.  
 XX  
 SQ Sequence 146 AA;  
 Query Match 100.0%; Score 785; DB 23; Length 146;



Best Local Similarity 100.0%; Pred. No. 1.8e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFRLRHPDGRVGVRSKSPHKLQDAER 60  
DB 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFRLRHPDGRVGVRSKSPHKLQDAER 60  
QY 61 GVVSITKVCANRYLAKMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
DB 61 GVVSITKVCANRYLAKMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 8  
AAR22233  
ID AAR22233 standard; Protein: 148 AA.

AC AAR22233;  
XX 23-JUN-1992 (first entry)  
XX bFGF truncated at its N-terminus.  
DE bFGF truncated at its N-terminus.  
XX Basic fibroblast growth factor; adduct; heparin; heparan sulphate;  
KM pepsin A; cathepsin D; wounds; burns.  
XX Synthetic.

XX Key 1 Location/Qualifiers  
FT Peptide /note="X" = residues 1-8 of bFGF "  
FT

MO9202539-A.

20-FEB-1992.

30-JUL-1991; 91WO-EP01428.

02-AUG-1990; 90GB-0017008.

(FARM) FARMITALIA C ERBA SRL.

Monsan P, Paul F, Betbeder D, Sarmientos P;

WPI, 1992-080021/10.

Prepn. of basic fibroblast growth factor - by forming adduct with  
heparin or heparan sulphate and cleaning with pepsin A or  
cathepsin D

Claim 3; Page 27; 36pp; English.

The peptide sequence was deduced from the synthetic DNA sequence  
pred. as described in EP-363675. E. coli cells transformed with the  
synthetic DNA were lysed and the supernatant purified, giving a  
50:50 mixture of a 154 residue bFGF (2-155) having the amino acid  
sequence of the 155 residue form (Abraham et al., Science, 233, 545-  
548, 1986) but without the N-terminal Met; and a 153 residue bFGF  
(3-155). An adduct of bFGF formed with heparin or heparan sulphate  
contg. the bFGF 9-10 Leu-Pro bond can be cleaved with pepsin A or  
cathepsin D to cleave this bond and release a peptide with the  
N-terminus deleted up to and including residue 9, sequentially,  
CC (giving a protein of X-bFGF(9-155)), where X is any peptide from  
residues 1-9 of bFGF sequentially. This cleavage method can be  
used to obtain a pure form of the 146 amino acid bFGF (10-155) bFGF.  
The prod. can be used to treat wounds and burns.  
See also AAR22232.

Sequence 148 AA;

Query Match 100.0%; Score 785; DB 13; Length 148;  
Best Local Similarity 100.0%; Pred. No. 1.9e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFRLRHPDGRVGVRSKSPHKLQDAER 60  
DB 3 PALPEDGSSGAFPPGHFDPKRLCKNGGFRLRHPDGRVGVRSKSPHKLQDAER 62  
QY 61 GVVSITKVCANRYLAKMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
DB 63 GVVSITKVCANRYLAKMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYTSWYVALKR 122  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 123 TGQYKLGSKTGPQKAILFLPMSAKS 148

RESULT 9  
AAR71414  
ID AAR71414 standard; protein: 153 AA.

AC AAR71414;  
XX 18-OCT-1995 (first entry)  
XX Human basic fibroblast growth factor.  
DE Human basic fibroblast growth factor.  
XX basic fibroblast growth factor; bFGF; homo sapiens; human; gel;  
KM periodontal disease; regeneration; re-attachment; bone; membrane;  
XX cementum; dentine.

OS Homo sapiens.

XX WO9505840-A.

02-MAR-1995.

25-AUG-1993; 93WO-JP01211.

25-AUG-1993; 93WO-JP01211.

(KAKE) KAKEN PHARM CO LTD.

Amakawa M, Asano T, Nakano Y, Saga K, Sugimoto H;

Terashima A;

WPI, 1995-106672/14.

Dental treatment containing basic fibroblast growth factor - for  
treating periodontal disease and promoting implant fixation and  
dentine regeneration

Claim 8; Page 19; 35pp; Japanese.

This is a basic fibroblast growth factor (bFGF) of human origin. It  
is used in a compn. to treat periodontal disease. The compn.  
promotes regeneration an re-attachment of the bone of the tooth  
socket, the periodontal membrane and the cementum and regeneration  
of dentine. The bFGF may be prepd. by recombinant methods, and is  
pref. formulated in a gel for application to the affected area.

Sequence 153 AA;

Query Match 100.0%; Score 785; DB 16; Length 153;  
Best Local Similarity 100.0%; Pred. No. 1.9e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLCKNGGFRLRHPDGRVGVRSKSPHKLQDAER 60  
DB 8 PALPEDGSSGAFPPGHFDPKRLCKNGGFRLRHPDGRVGVRSKSPHKLQDAER 67  
QY 61 GVVSITKVCANRYLAKMKEDGRLASKCYTDECFEERLESNNYNTYRSRKYTSWYVALKR 120

Db 68 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKRTSWYVALKR 127  
 QY 121 TGOYKLSKSTGPGOKAILFLPMSAKS 146  
 Db 128 TGOYKLSKSTGPGOKAILFLPMSAKS 153

## RESULT 10

AAR71413  
 ID AAR71413 standard; protein; 154 AA.

AC AAR71413;

DT 18-OCT-1995 (first entry)

DE Human basic fibroblast growth factor.

KW basic fibroblast growth factor; bFGF; homo sapiens; human; gel;

KM periodontal disease; regeneration; re-attachment; bone; membrane;

KW cementum; dentine.

OS Homo sapiens.

PN W09505840-A.

PD 02-MAR-1995.

PF 25-AUG-1993; 93WO-JP01211.

PR 25-AUG-1993; 93WO-JP01211.

XX (KAKE ) KAKEN PHARM CO LTD.

XX Amakawa M, Asano T, Nakano Y, Saga K, Sugimoto H;

PI Tetsushima A;

DR WPI: 1995-106672/14.

PT Dental treatment containing basic fibroblast growth factor - for

PT treating periodontal disease and promoting implant fixation and

PT dentine regeneration

PS Claim 7; Page 18; 35pp; Japanese.

XX This is a basic fibroblast growth factor (bFGF) of human origin. It

CC is used in a compsn. to treat periodontal disease. The compsn.

CC promotes regeneration an re-attachment of the bone of the tooth

CC socket, the periodontal membrane and the cementum and regeneration

CC of dentine. The bFGF may be prepd. by recombinant methods, and is

CC pref. formulated in a gel for application to the affected area.

XX Sequence 154 AA;

SO Query Match 100.0%; Score 785; DB 16; Length 154;

Best Local Similarity 100.0%; Pred. No. 1.9e-75;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLKCKNGFFLRHPDGRVDSVREKSDPHIKLQQAER 60

Db 9 PALPEDGSSGAFPPGHFDPKRLKCKNGFFLRHPDGRVDSVREKSDPHIKLQQAER 68

QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKRTSWYVALKR 120

Db 69 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKRTSWYVALKR 128

QY 121 TGOYKLSKSTGPGOKAILFLPMSAKS 146

Db 129 TGOYKLSKSTGPGOKAILFLPMSAKS 154

RESULT 11

AAR89473

ID AAR89473 standard; protein; 154 AA.

XX AAR89473;

AC 08-AUG-1996 (first entry)

DT Human basic fibroblast growth factor.

DE Human; basic fibroblast growth factor; bFGF; oral mucosal disease; mouth;

KW stomatitis; inflammation; chemotherapy; radioactive treatment; deletion.

KW Homo sapiens.

OS Key Location/Qualifiers

FT MISC-difference 1 /note= "this residue may be opt. deleted"

PN JP08027024-A.

PD 30-JAN-1996.

PF 12-JUL-1994; 94JP-0182791.

PR 12-JUL-1994; 94JP-0182791.

XX (KAKE ) KAKEN PHARM CO LTD.

XX WPI: 1996-136204/14.

PT Agent for treating oral mucosa diseases - contg. basic fibroblast

PT growth factor as active component, where diseases are caused by

PT chemotherapy or radioactive treatment

PS Disclosure; Page 7; 8pp; Japanese.

XX This is the amino acid of the human basic fibroblast growth factor used

CC in a novel method of treating oral mucosal disease esp. stomatitis and

CC mucosal inflammation caused by chemotherapy or by radioactive treatment.

CC The same protein lacking the N-terminal Ala can also be used in the

CC treatment.

XX Sequence 154 AA;

SO Query Match 100.0%; Score 785; DB 17; Length 154;

Best Local Similarity 100.0%; Pred. No. 1.9e-75;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLKCKNGFFLRHPDGRVDSVREKSDPHIKLQQAER 60

Db 9 PALPEDGSSGAFPPGHFDPKRLKCKNGFFLRHPDGRVDSVREKSDPHIKLQQAER 68

QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKRTSWYVALKR 120

Db 69 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKRTSWYVALKR 128

QY 121 TGOYKLSKSTGPGOKAILFLPMSAKS 146

Db 129 TGOYKLSKSTGPGOKAILFLPMSAKS 154

RESULT 12

ABBO9967

ID ABBO9967 standard; protein; 154 AA.

AC ABBO9967;

DT 08-OCT-2002 (first entry)

DE Human basic fibroblast growth factor\_155.

XX sic fibroblast growth factor\_155; bFGF\_155; photoSELEX; photocrosslink;

KW LEX; photoplatmer; human.

OS homo sapiens.

XX WO200206510-A2.  
 XX  
 XX 24-JAN-2002.  
 XX  
 XX 18-JUL-2001; 2001WO-US22561.  
 XX  
 XX 19-JUL-2000; 2000US-0619213.  
 XX  
 XX (SOMA-) SOMALOGIC INC.  
 XX  
 XX Gold I, Smith JD, Koch T, Golden M;  
 XX  
 XX WPI; 2002-179798/23.  
 XX  
 XX Identifying nucleic acid ligands photocrosslinking to target from  
 XX nucleic acids containing photoreactive groups, by modification of  
 XX systematic evolution of ligands by exponential enrichment method,  
 XX termed photoSELEX -  
 XX  
 XX Disclosure; Page 6; 105pp; English.  
 XX  
 XX The sequence represents human basic fibroblast Growth Factor 155  
 XX (bFGF 155). The invention relates to a novel method for identifying  
 XX nucleic acid ligands that photocrosslink to a target from a candidate  
 XX mixture of nucleic acids which contain one or more photoreactive groups,  
 XX by a modification of the systematic evolution of ligands by exponential  
 XX enrichment (SELEX) method, termed photoSELEX. The use of photocaptamer as  
 XX a capture molecule in a diagnostic assay adds an extra dimension of  
 XX specificity and supplants the need for sandwich assays.  
 XX  
 XX Sequence 154 AA;  
 XX  
 XX Query Match 100.0%; Score 785; DB 23; Length 154;  
 XX Best Local Similarity 100.0%; Pred. No. 1.9e-75;  
 XX Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 XX  
 XX QY 1 PALPEDGGGAGPPGHHFKDPKRLKCKNGGFLLRIHPDGRVDGVRKSDPHIKILOAEEER 60  
 XX |||||||  
 XX DB 9 PALPEDGGGAGPPGHHFKDPKRLKCKNGGFLLRIHPDGRVDGVRKSDPHIKILOAEEER 68  
 XX  
 XX QY 61 GVVSTKGVCANRYLAKKEDGRLKSCVTDCEFFERLESNNYNTRSRKYTSWYVALKR 120  
 XX |||||||  
 XX DB 69 GVVSTKGVCANRYLAKKEDGRLKSCVTDCEFFERLESNNYNTRSRKYTSWYVALKR 128  
 XX  
 XX QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 XX |||||||  
 XX DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154  
 XX  
 XX RESULT 13  
 XX ABB83829  
 XX ID ABB83829 standard; Protein; 154 AA.  
 XX  
 XX AC ABB83829;  
 XX  
 XX DT 16-SEP-2002 (first entry)  
 XX  
 XX DE Human bFGF related protein 2.  
 XX  
 XX KW Human; basic fibroblast growth factor; bFGF; extracellular secretion.  
 XX  
 XX OS Homo sapiens.  
 XX  
 XX PN KR2001111728-A.  
 XX  
 XX PD 20-DEC-2001.  
 XX  
 XX PF 13-JUN-2000; 2000KR-0032374.  
 XX  
 XX PR 13-JUN-2000; 2000KR-0032374.  
 XX  
 XX (JANG/) JANG Y S.

PA (PARK/) PARK H Y.  
 XX  
 XX Hwang GC, Jang YS, Kwon JH, Lim HJ, Park HY, Son YD;  
 XX  
 XX WPI; 2002-398942/43.  
 XX  
 XX DR N-PSDB; ABN85681.  
 XX  
 XX PT Recombinant genome of human originated basic fibroblast growth  
 XX factor(bfgf) having increased extracellular secretion efficiency and  
 XX its expression vector -  
 XX  
 XX Disclosure; Fig 6; 20pp; Korean.  
 XX  
 XX The invention relates to a recombinant genome of human originated basic  
 XX fibroblast growth factor(bFGF) having increased extracellular secretion  
 XX efficiency, an expression vector and therapeutics containing the gene  
 XX and the vector. The present sequence is that of a polypeptide, useful  
 XX to the invention.  
 XX  
 XX Sequence 154 AA;  
 XX  
 XX Query Match 100.0%; Score 785; DB 23; Length 154;  
 XX Best Local Similarity 100.0%; Pred. No. 1.9e-75;  
 XX Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 XX  
 XX QY 1 PALPEDGGGAGPPGHHFKDPKRLKCKNGGFLLRIHPDGRVDGVRKSDPHIKILOAEEER 60  
 XX |||||||  
 XX DB 9 PALPEDGGGAGPPGHHFKDPKRLKCKNGGFLLRIHPDGRVDGVRKSDPHIKILOAEEER 68  
 XX  
 XX QY 61 GVVSTKGVCANRYLAKKEDGRLKSCVTDCEFFERLESNNYNTRSRKYTSWYVALKR 120  
 XX |||||||  
 XX DB 69 GVVSTKGVCANRYLAKKEDGRLKSCVTDCEFFERLESNNYNTRSRKYTSWYVALKR 128  
 XX  
 XX QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 XX |||||||  
 XX DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154  
 XX  
 XX RESULT 14  
 XX AAP70301  
 XX ID AAP70301 standard; Protein; 155 AA.  
 XX  
 XX AC AAP70301;  
 XX  
 XX DT 05-JUN-1991 (first entry)  
 XX  
 XX DE Sequence of human basic fibroblast growth factor (bFGF).  
 XX  
 XX KW Fibroblast growth promoter; mesoderm cell growth promoter;  
 XX wound healing.  
 XX  
 XX OS Homo sapiens.  
 XX  
 XX PN Key Location/Qualifiers  
 XX FH Reptide 1.9  
 XX FT Protein 10.155  
 XX FT Protein /note="claimed"  
 XX  
 XX PN EP237966-A.  
 XX  
 XX PD 23-SEP-1987.  
 XX  
 XX PF 12-MAR-1987; 87EP-0103601.  
 XX  
 XX PR 29-SEP-1986; 86JP-0231428.  
 XX  
 XX PR 14-MAR-1986; 86JP-0057919.  
 XX  
 XX PR 09-APR-1986; 86JP-0082599.  
 XX  
 XX PR 09-OCT-1986; 86JP-0241053.  
 XX  
 XX PA (TAKE ) TAKEDA\_CHEMICAL, IND KK.  
 XX  
 XX PI Kurokawa T, Sasada R, Iwane M, Igarashi K;

DR MPI: 1987-265363/38.  
 DR N-PSDB: AAN70494.  
 XX Human basic fibroblast growth factor - produced by recombinant  
 PT DNA techniques, useful for healing wounds, prophylaxis,  
 PT thrombosis and arteriosclerosis treatment, etc.  
 XX  
 PS Disclosure: Fig 1; 38pp; English.  
 XX  
 CC hBFGF is produced using cDNA prep'd. from RNA isolated from W138 or  
 CC IM90 human fibroblasts. hBFGF promotes growth of fibroblasts and  
 CC other mesoderm-derived cells and is useful for promoting healing of  
 CC wounds (eg burns), for prophylaxis and treatment of thrombosis and  
 CC arteriosclerosis, and as a promoter for cell culture.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 100.0%; Score 785; DB 8; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 2e-75;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 PALPEDGSGAPPGHFKDPKRLCKNGGFRLRHPDGRVNDGVREKSDPHIKLQAEER 60  
 DB 10 PALPEDGSGAPPGHFKDPKRLCKNGGFRLRHPDGRVNDGVREKSDPHIKLQAEER 69  
 QY 61 GVVSIKGVCANRYLAKMKEDGRLASKCVTDECFFERLESNNYNTYRSKRYTSWYALKR 120  
 DB 70 GVVSIKGVCANRYLAKMKEDGRLASKCVTDECFFERLESNNYNTYRSKRYTSWYALKR 129  
 QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 DB 130 TGOYKLGSKTGPQKAILFLPMSAKS 155  
 RESULT 15  
 AAP94038  
 ID AAP94038 standard: protein; 155 AA.  
 XX  
 AC AAP94038;  
 XX  
 DT 25-JUN-1990 (first entry)  
 XX  
 DE Human basic fibroblast growth factor.  
 XX  
 KW Basic fibroblast growth factor; pUC9-TSFl1; pUC9delH3-PTSF-3.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 78 /label-Cys  
 FT Misc-difference 96 /note="replaced by Ser or Ala"  
 FT Misc-difference 128 /label-Cys  
 FT Misc-difference 129 /note="replaced by Ser or Glu"  
 FT Misc-difference 138 /label-Arg  
 FT Misc-difference 138 /note="replaced by Thr"  
 FT Misc-difference 138 /label-Lys  
 FT Domain 128..138 /note="replaced by Ser"  
 FT 128..138 /label-heparin-binding domain  
 XX  
 PN EP298723-A.  
 XX  
 PD 11-JAN-1989.  
 XX  
 PF 06-JUL-1988; 88EP-0306158.  
 XX

PR 07-JUL-1987; 87US-0070797.  
 XX  
 XX (BIOT-) BIOTECHN RES ASSOC.  
 XX  
 PI Fildes JC, Abraham JA, Protter A;  
 XX  
 DR MPI: 1989-009785/02.  
 DR N-PSDB: AAN93087.  
 XX  
 PT Recombinant DNA encoding new fibroblast growth factor  
 PT analogues - useful eg for accelerating wound healing and  
 PT to control neovascularisation.  
 XX  
 PS Disclosure: d 1-2; 44pp; English.  
 XX  
 CC DNA encoding the sequence may be mutated to encode an analogue, of human  
 CC basic fibroblast growth factor (bFGF) bFGF-C78/96S, which has reduced  
 CC affinity for heparin. One or more positively-charged AAs in the heparin-  
 CC binding domain (AAs 128-138) are replaced by neutral or negatively-  
 CC charged residues as indicated in the feature table. A recombinant vector  
 CC (pUC9-TSFl1 or pUC9delH3-PTSF-3) contg. the mutated DNA can be used to  
 CC transform bacterial or mammalian host cells for prodn. of the analogue.  
 CC See also AAP94038.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 100.0%; Score 785; DB 10; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 2e-75;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 PALPEDGSGAPPGHFKDPKRLCKNGGFRLRHPDGRVNDGVREKSDPHIKLQAEER 60  
 DB 10 PALPEDGSGAPPGHFKDPKRLCKNGGFRLRHPDGRVNDGVREKSDPHIKLQAEER 69  
 QY 61 GVVSIKGVCANRYLAKMKEDGRLASKCVTDECFFERLESNNYNTYRSKRYTSWYALKR 120  
 DB 70 GVVSIKGVCANRYLAKMKEDGRLASKCVTDECFFERLESNNYNTYRSKRYTSWYALKR 129  
 QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 DB 130 TGOYKLGSKTGPQKAILFLPMSAKS 155  
 Search completed: December 4, 2002, 11:11:13  
 Job time : 33 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

## OM protein - protein search, using sw model

Run on: December 4, 2002, 11:10:08 ; Search time 11.5 Seconds

(without alignments)  
373.543 Million cell updates/sec

Title: US-09-886-856-4

Perfect score: 785  
Sequence: 1 PALPEDEGSGAFPPGHEKDP.....GSKTGPCOKALFLPSAKS 146

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : Issued\_Patents\_AA.\*

1: /cgn2\_6/pdata/1/1aa/5A.COMB.pep.\*  
2: /cgn2\_6/pdata/1/1aa/5B.COMB.pep.\*  
3: /cgn2\_6/pdata/1/1aa/6A.COMB.pep.\*  
4: /cgn2\_6/pdata/1/1aa/6B.COMB.pep.\*  
5: /cgn2\_6/pdata/1/1aa/PCRTUS.COMB.pep.\*  
6: /cgn2\_6/pdata/1/1aa/backfiles1.pep.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	785	100.0	146	2	US-08-231-894A-11
2	785	100.0	146	4	US-09-417-721-3
3	785	100.0	153	3	US-08-325-186-2
4	785	100.0	154	2	US-08-438-439C-24
5	785	100.0	154	3	US-08-325-186-1
6	785	100.0	154	5	PCR-US91-02186-6
7	785	100.0	155	1	US-07-959-369-6
8	785	100.0	155	1	US-08-023-757-2
9	785	100.0	155	1	US-07-842-177A-1
10	785	100.0	155	1	US-08-177-502-2
11	785	100.0	155	1	US-08-439-725A-10
12	785	100.0	155	1	US-08-325-632-1
13	785	100.0	155	1	US-08-462-169B-10
14	785	100.0	155	2	US-08-867-471-10
15	785	100.0	155	2	US-08-438-439C-14
16	785	100.0	155	2	US-08-951-822-28
17	785	100.0	155	2	US-09-103-079-10
18	785	100.0	155	3	US-08-705-245-6
19	785	100.0	155	3	US-08-897-924A-25
20	785	100.0	155	3	US-08-718-904-11
21	785	100.0	155	3	US-09-023-082A-17
22	785	100.0	155	3	US-09-030-613-3
23	785	100.0	155	4	US-09-098-628-2
24	785	100.0	155	4	US-09-451-905-3
25	785	100.0	155	4	US-09-240-952-4
26	785	100.0	155	4	US-09-368-951-28
27	785	100.0	155	4	US-09-366-009-3

28	785	100.0	155	4	US-09-619-213B-99	Sequence 99, Appl
29	785	100.0	155	5	PCT-US91-02186-2	Sequence 2, Appl
30	785	100.0	155	6	5514566-8	Patent No. 5514566
31	785	100.0	158	2	US-08-599-895-3	Sequence 3, Appl
32	785	100.0	158	3	US-09-211-290-3	Sequence 3, Appl
33	785	100.0	158	3	US-09-322-676-3	Sequence 3, Appl
34	785	100.0	158	4	US-09-220-077C-2	Sequence 2, Appl
35	785	100.0	158	4	US-09-466-036A-3	Sequence 3, Appl
36	785	100.0	210	1	US-08-464-590A-14	Sequence 14, Appl
37	785	100.0	210	2	US-08-207-412B-9	Sequence 9, Appl
38	785	100.0	210	3	US-09-093-585-14	Sequence 14, Appl
39	785	100.0	235	1	US-08-078-683A-39	Sequence 39, Appl
40	785	100.0	432	1	US-07-959-369-8	Sequence 8, Appl
41	785	100.0	432	2	US-08-836-854-20	Sequence 20, Appl
42	785	100.0	432	4	US-09-366-009-4	Sequence 4, Appl
43	782	99.6	155	1	US-07-959-369-7	Sequence 7, Appl
44	782	99.6	432	1	US-07-959-369-9	Sequence 9, Appl
45	779	99.2	146	6	5464943-6	Patent No. 5464943

## ALIGNMENTS

RESULT 1  
US-08-231-894A-11  
Sequence 11, Application US/08231894A  
Patent No. 5851990  
GENERAL INFORMATION:  
APPLICANT: FUJISHIMA, AKIRA  
TITLE OF INVENTION: BRGF MOTELIN AND ITS PRODUCTION  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS  
STREET: 130 WATER STREET  
CITY: BOSTON  
STATE: MASSACHUSETTS  
COUNTRY: US  
ZIP: 02109  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: DOS  
SOFTWARE: FASTSEQ Version 1.5  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/231,894A  
FILING DATE: 22-APR-1994  
CLASSIFICATION: 435  
PRIORITY APPLICATION DATA:  
APPLICATION NUMBER: US 07/873907  
FILING DATE: 24-APR-1992  
CLASSIFICATION: 435  
PRIORITY APPLICATION DATA:  
APPLICATION NUMBER: JP 097655-1991  
FILING DATE: 26-APR-1991  
PRIORITY APPLICATION DATA:  
APPLICATION NUMBER: JP 066381-1992  
FILING DATE: 24-MAR-1992  
ATTORNEY/AGENT INFORMATION:  
NAME: RESNICK, DAVID S.  
REGISTRATION NUMBER: 34235  
REFERENCE/DOCKET NUMBER: 41769-FWC  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (617) 523-3400  
TELEFAX: (617) 523-6440  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 146 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: peptide

HYPOTHETICAL: NO  
ANTI-SENSE: NO  
FRAGMENT TYPE: Internal  
ORIGINAL SOURCE:  
US-08-231-894A-11

Query Match 100.0%; Score 785; DB 2; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.8e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGGGAFPPGHFDPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLQQAER 60  
DB 1 PALPEDGGGAFPPGHFDPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLQQAER 60  
OY 61 GVSISIKVCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120  
DB 61 GVSISIKVCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120  
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 2  
US-09-417-721-3  
Sequence 3, Application US/09417721  
Patent No. 6451303  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
APPLICANT: Kavanaugh, Michael W.  
TITLE OF INVENTION: Angiogenetically Effective Unit Dose of FGF and Method of  
FILE REFERENCE: 1296/121690505  
CURRENT APPLICATION NUMBER: US/09/417,721  
CURRENT FILING DATE: 1999-10-13  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: Patent In Ver. 2.0  
SEQ ID NO 3  
LENGTH: 146  
TYPE: PRT  
ORGANISM: Human FGF-2  
US-09-417-721-3

Query Match 100.0%; Score 785; DB 4; Length 146;  
Best Local Similarity 100.0%; Pred. No. 1.8e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGGGAFPPGHFDPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLQQAER 60  
DB 1 PALPEDGGGAFPPGHFDPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLQQAER 60  
OY 61 GVSISIKVCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120  
DB 61 GVSISIKVCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120  
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 3  
US-08-325-186-2  
Sequence 2, Application US/08325186  
Patent No. 6046164  
GENERAL INFORMATION:  
APPLICANT: ASANO, Taiji  
APPLICANT: SUGIMOTO, Hajime  
APPLICANT: TERASHIMA, Akio  
APPLICANT: NAKANO, Yoshiko  
APPLICANT: AMAKAWA, Masahiro  
APPLICANT: SAGA, Katumasa

TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL  
TISSUE

TITLE OF INVENTION: TISSUE

NUMBER OF SEQUENCES: 2

CORRESPONDENCE ADDRESS:

ADDRESSEE: Armstrong, Westernman, Hattori, Mclelland &

STREET: 1725 K St. N.W. Suite 1000

CITY: Washington

STATE: D.C.

COUNTRY: U.S.A.

ZIP: 20006

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.5 in, 1.44MB

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0

SOFTWARE: ASCII

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/325,186

FILING DATE: 24-May-95

CLASSIFICATION: 514

PRIOR APPLICATION DATA:

APPLICATION NUMBER: PCT/JP93/01211

FILING DATE: 25-Aug-1993

ATTORNEY/AGENT INFORMATION:

NAME: Stevens-Smith, Theresa M.

REGISTRATION NUMBER: 36,281

REFERENCE/DOCKET NUMBER: 950319

TELECOMMUNICATION INFORMATION:

TELEPHONE: (202) 659-2930

TELEFAX: (202) 887-0357

TELEX: 440142

INFORMATION FOR SEQ ID NO: 2:

SEQUENCE CHARACTERISTICS:

LENGTH: 153

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-325-186-2

Query Match 100.0%; Score 785; DB 3; Length 153;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGGGAFPPGHFDPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLQQAER 60  
DB 8 PALPEDGGGAFPPGHFDPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLQQAER 67  
OY 61 GVSISIKVCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120  
DB 61 GVSISIKVCANRYLAMKEDGRILASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120  
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 153

RESULT 4  
US-08-438-439C-24  
Sequence 24, Application US/08438439C  
Patent No. 5876967  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Phillip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-2 AND METHODS OF USE  
NUMBER OF SEQUENCES: 25  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA

ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/438,439C  
FILING DATE: May 12, 1995  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Halle, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/046001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-5099  
INFORMATION FOR SEQ ID NO: 24:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 154 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-438-439C-24

Query Match 100.0%; Score 785; DB 2; Length 154;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPDDGSGAPPFGHFKDPKRLCYCKNGGFLRIHPDGRVNDGVRKSDPHIKLQDAER 60  
DB 9 PALPDDGSGAPPFGHFKDPKRLCYCKNGGFLRIHPDGRVNDGVRKSDPHIKLQDAER 68  
QY 61 GYVSTIKGVANRYLAKMEDGRLLASKCVYDECFEERLESNNYNYRSKRYTSWYALKR 120  
DB 69 GYVSTIKGVANRYLAKMEDGRLLASKCVYDECFEERLESNNYNYRSKRYTSWYALKR 128  
QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 5  
US-08-325-186-1  
Sequence 1, Application US/08325186  
Patent No. 6046164  
GENERAL INFORMATION:  
APPLICANT: ASANO, Taiji  
APPLICANT: SUGIMOTO, Hajime  
APPLICANT: TERASHIMA, Akio  
APPLICANT: NAKANO, Yoshiko  
APPLICANT: AOKAWA, Masahito  
TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL  
TITLE OF INVENTION: TISSUE  
NUMBER OF SEQUENCES: 2  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Armstrong, Westerman, Hattori, Mclelland &  
STREET: 1725 K St. N.W. Suite 1000  
CITY: Washington  
STATE: D.C.  
COUNTRY: U.S.A.  
ZIP: 20006  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette, 3.5 in, 1.44MB  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0  
SOFTWARE: ASCII  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/325,186  
FILING DATE: 24-MAY-95

CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: PCT/JP93/01211  
FILING DATE: 25-AUG-1993  
ATTORNEY/AGENT INFORMATION:  
NAME: Stevens-Smith, Theresa M.  
REGISTRATION NUMBER: 36,281  
REFERENCE/DOCKET NUMBER: 950319  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 659-2930  
TELEFAX: (202) 887-0357  
TELEX: 440142  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 154  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-325-186-1

Query Match 100.0%; Score 785; DB 3; Length 154;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPDDGSGAPPFGHFKDPKRLCYCKNGGFLRIHPDGRVNDGVRKSDPHIKLQDAER 60  
DB 9 PALPDDGSGAPPFGHFKDPKRLCYCKNGGFLRIHPDGRVNDGVRKSDPHIKLQDAER 68  
QY 61 GYVSTIKGVANRYLAKMEDGRLLASKCVYDECFEERLESNNYNYRSKRYTSWYALKR 120  
DB 69 GYVSTIKGVANRYLAKMEDGRLLASKCVYDECFEERLESNNYNYRSKRYTSWYALKR 128  
QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 6  
PCT-US91-02186-6  
Sequence 6, Application PC/TUS9102186  
GENERAL INFORMATION:  
APPLICANT: California Biotechnology Inc.  
APPLICANT: Inventors: Thompson, Stewart A.  
APPLICANT: Abraham, Judith A.  
TITLE OF INVENTION: High Level Expression of Basic  
TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous  
TITLE OF INVENTION: N-terminus  
NUMBER OF SEQUENCES: 26  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Irell & Manella  
STREET: 545 Middlefield Road, Suite 200  
CITY: Menlo Park  
STATE: California  
COUNTRY: USA  
ZIP: 94025-3471  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US91/02186  
FILING DATE: 19910702  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Murashige, Kate H.  
REGISTRATION NUMBER: 29,959  
REFERENCE/DOCKET NUMBER: 1900-0275.41  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-327-7250  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 154 amino acids

TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
PCT-US91-02186-6

Query Match 100.0%; Score 785; DB 5; Length 154;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 60  
DB 9 PALPEDGSSGAFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 68  
QY 61 GVSISIKGVCANRYLAMKEDGRLASKCYTDECFFERLESNNYNTYRSRKYTSWYALKR 120  
DB 69 GVSISIKGVCANRYLAMKEDGRLASKCYTDECFFERLESNNYNTYRSRKYTSWYALKR 128  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 129 TGQYKLGSKTGPQKAILFLPMSAKS 154

## RESULT 7

US-07-959-369-6  
Sequence 6, Application US/07959369  
Patent No. 5302701  
GENERAL INFORMATION:  
APPLICANT: Hidetaka HASHI et al.  
TITLE OF INVENTION: No. 5302701el Functional Polypeptide  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Wendeboth, Lind & Ponack  
STREET: 805 Fifteenth Street, N.W., #700  
CITY: Washington  
STATE: D.C.  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette, 5.25 Inch, 500 kb  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: MS-DOS  
SOFTWARE: Wordperfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/959,369  
FILING DATE: 19921013  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Warren M. Cheek, Jr.  
REGISTRATION NUMBER: 33,367  
REFERENCE/DOCKET NUMBER:  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-371-8850  
TELEFAX:  
TELEX:  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: polypeptide  
HYPOTHETICAL:  
ANTI-SENSE:  
FRAGMENT TYPE:  
ORIGINAL SOURCE:  
ORGANISM:  
STRAIN:  
INDIVIDUAL ISOLATE:  
DEVELOPMENTAL STAGE:  
HAPLOTYPE:

TISSUE TYPE:  
CELL TYPE:  
CELL LINE:  
ORGANELLE:  
IMMEDIATE SOURCE:  
LIBRARY:

CLONE:  
POSITION IN GENOME:  
CHROMOSOME/SEGMENT:  
MAP POSITION:

UNITS:  
FEATURE:

NAME/KEY:  
LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION:

PUBLICATION INFORMATION:  
AUTHORS:

TITLE:  
JOURNAL:

VOLUME:  
ISSUE:  
PAGES:

DATE:  
DOCUMENT NUMBER:  
FILING DATE:  
PUBLICATION DATE:

US-07-959-369-6  
RELEVANT RESIDUES IN SEQ ID NO:

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 60  
DB 10 PALPEDGSSGAFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPHIKLOQAEER 69  
QY 61 GVSISIKGVCANRYLAMKEDGRLASKCYTDECFFERLESNNYNTYRSRKYTSWYALKR 120  
DB 70 GVSISIKGVCANRYLAMKEDGRLASKCYTDECFFERLESNNYNTYRSRKYTSWYALKR 129  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 130 TGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 8

US-08-023-757-2  
Sequence 2, Application US/08023757  
Patent No. 5302702  
GENERAL INFORMATION:  
APPLICANT: Seddon Dr., Andrew P.  
APPLICANT: Bohlen Dr., Peter  
APPLICANT: Gluzman Dr., Yakov  
TITLE OF INVENTION: Chimeric Fibroblast Growth Factors  
NUMBER OF SEQUENCES: 8  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: American Cyanamid Company  
STREET: 1937 West Main Street, P. O. Box 60  
CITY: Stamford,  
STATE: CT  
COUNTRY: USA  
ZIP: 06904-0060  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/023,757  
FILING DATE: 26-FEB-1993  
CLASSIFICATION: 530



PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/07/615,202  
FILING DATE: 23-NOV-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Tseveds Dr., Estelle J.  
REGISTRATION NUMBER: 31,145  
REFERENCE/DOCKET NUMBER: 31,219-00  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 203-321-2756  
TELEFAX: 203-321-2971  
TELEX: 710-474-4059  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-023-757-2

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1,9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAPPFGHFKPKRLKCKNGGFFLRHPDGRVDGVRKSDPHIKLOAEER 60  
DB 10 PALPEDGSGAPPFGHFKPKRLKCKNGGFFLRHPDGRVDGVRKSDPHIKLOAEER 69  
QY 61 GVVSINGVCANRYLAKKEDGRLLASCKVTDECFEERLESNNYNTYRSKRYTSWYALKR 120  
DB 70 GVVSINGVCANRYLAKKEDGRLLASCKVTDECFEERLESNNYNTYRSKRYTSWYALKR 129  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 130 TGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 9  
US-07-842-177A-1  
Sequence 1, Application US/07842177A  
Patent No. 5348863  
GENERAL INFORMATION:  
APPLICANT: MONSIEUR, PIERRE  
APPLICANT: PAUL, FRANCOIS  
APPLICANT: BETBEDER, DIDIER  
APPLICANT: SAMIENTOS, PAOLO  
TITLE OF INVENTION: PROCESS FOR THE ENZYMAIC PREPARATION OF  
TITLE OF INVENTION: BASIC FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 6  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBION, SPIVAK, MCLELLAND, MAIER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Suite 400  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/842,177A  
FILING DATE: 19920402  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: GB 9017008.5  
FILING DATE: 02-AUG-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Obion, No. 5348863man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-263-0 PCT  
TELECOMMUNICATION INFORMATION:

TELEPHONE: (703) 521-4500  
TELEFAX: (703) 486-2347  
TELEX: 248855 OPAT UR  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-07-842-177A-1

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1,9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAPPFGHFKPKRLKCKNGGFFLRHPDGRVDGVRKSDPHIKLOAEER 60  
DB 10 PALPEDGSGAPPFGHFKPKRLKCKNGGFFLRHPDGRVDGVRKSDPHIKLOAEER 69  
QY 61 GVVSINGVCANRYLAKKEDGRLLASCKVTDECFEERLESNNYNTYRSKRYTSWYALKR 120  
DB 70 GVVSINGVCANRYLAKKEDGRLLASCKVTDECFEERLESNNYNTYRSKRYTSWYALKR 129  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
DB 130 TGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 10  
US-08-177-502-2  
Sequence 2, Application US/08177502  
Patent No. 5371206  
GENERAL INFORMATION:  
APPLICANT: Seddon Dr., Andrew P.  
APPLICANT: Bohlen Dr., Peter  
APPLICANT: Gluzman Dr., Yakov  
TITLE OF INVENTION: Chimeric Fibroblast Growth Factors  
NUMBER OF SEQUENCES: 8  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: American Cyanamid Company  
STREET: 1937 West Main Street, P. O. Box 60  
CITY: Stamford,  
STATE: CT  
COUNTRY: USA  
ZIP: 06904-0060  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/177,502  
FILING DATE: 05-JAN-1994  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/023,757  
FILING DATE: 26-FEB-1993  
APPLICATION NUMBER: US/07/615,202  
FILING DATE: 23-NOV-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Tseveds Dr., Estelle J.  
REGISTRATION NUMBER: 31,145  
REFERENCE/DOCKET NUMBER: 31,219-00  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 203-321-2756  
TELEFAX: 203-321-2971  
TELEX: 710-474-4059  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
TOPOLOGY: linear

MOLECULE TYPE: protein  
US-08-177-502-2

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGGGAFPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOQAEER 60  
DB 10 PALPDDGGGAFPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOQAEER 69  
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 120  
DB 70 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 129  
OY 121 TGOYKLGSKTGPGRKAILFLPMSAKS 146  
DB 130 TGOYKLGSKTGPGRKAILFLPMSAKS 155

RESULT 11  
US-08-439-725A-10  
Sequence 10, Application US/08439725A  
Patent No. 5693775

GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-1 (FHR-1) AND METHODS OF USE  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/439,725A  
FILING DATE: 12-MAY-1995  
CLASSIFICATION: 424  
ATTORNEY/AGENT INFORMATION:  
NAME: Hallie, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/047001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEPHONE: 617/678-5099  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-439-725A-10

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGGGAFPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOQAEER 60  
DB 10 PALPDDGGGAFPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOQAEER 69  
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 120  
DB 70 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 129

DB 70 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 129

OY 121 TGOYKLGSKTGPGRKAILFLPMSAKS 146  
DB 130 TGOYKLGSKTGPGRKAILFLPMSAKS 155

RESULT 12  
US-08-325-632-1  
Sequence 1, Application US/08325632  
Patent No. 5714458

GENERAL INFORMATION:  
APPLICANT: ADAMI, MARCO  
APPLICANT: DALLA CASA, ROSANNA  
APPLICANT: GAMBINI, LUCIANO  
APPLICANT: MAGRINI, ROBERTO  
APPLICANT: MARINAI, ROSARIA  
APPLICANT: PERRONE, GIOVANNI  
TITLE OF INVENTION: STABLE PHARMACEUTICAL COMPOSITIONS  
TITLE OF INVENTION: CONTAINING A FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 1  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Fourth Floor  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/325,632  
FILING DATE:  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/07/966,077  
FILING DATE:  
APPLICATION NUMBER: GB 9015824.7  
FILING DATE: 18-JUL-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Oblon, No. 5714458man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-288-0 PCT  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703)412-3000  
TELEFAX: (703)413-2220  
TELEX: 248855 OPAT UR  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-325-632-1

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGGGAFPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOQAEER 60  
DB 10 PALPDDGGGAFPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOQAEER 69  
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 120  
DB 70 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSKRYTSWYALKR 129  
OY 121 TGOYKLGSKTGPGRKAILFLPMSAKS 146

Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 13

US-08-462-169B-10  
Sequence 10, Application US/08462169B  
Patent No. 5773252

## GENERAL INFORMATION:

APPLICANT: John Greene and Craig A. Rosen  
TITLE OF INVENTION: Fibroblast Growth Factor-15  
NUMBER OF SEQUENCES: 32

## CORRESPONDENCE ADDRESS:

ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,  
STREET: 6 BECKER FARM ROAD  
CITY: ROSELAND  
STATE: NEW JERSEY  
COUNTRY: USA  
ZIP: 07068

## COMPUTER READABLE FORM:

MEDIUM TYPE: 3.5 INCH DISKETTE  
COMPUTER: IBM PS/2  
OPERATING SYSTEM: MS-DOS  
SOFTWARE: WORD PERFECT 5.1

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/462.169B  
FILING DATE: 05 JUN 95

CLASSIFICATION: 514

## ATTORNEY/AGENT INFORMATION:

NAME: MULINS, J.G.  
REGISTRATION NUMBER: 33,073  
REFERENCE/DOCKET NUMBER: 325800-441 (PF203)  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 201-994-1700  
TELEFAX: 201-994-1744

INFORMATION FOR SEQ ID NO: 10:

## SEQUENCE CHARACTERISTICS:

LENGTH: 155 AMINO ACIDS  
TYPE: AMINO ACID  
STRANDEDNESS:  
TOPOLOGY: LINEAR

MOLECULE TYPE: PROTEIN

US-08-462-169B-10

Query Match 100.0%; Score 785; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAPPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOAEER 60

Db 10 PALPEDGSGAPPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOAEER 69

QY 61 GVSINGVCANRYLANKEDGRLLASRCVYDECFEERLESNNYTSRRKYSWYALKR 120

Db 70 GVSINGVCANRYLANKEDGRLLASRCVYDECFEERLESNNYTSRRKYSWYALKR 129

QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146

Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 14

US-08-867-471-10  
Sequence 10, Application US/08867471  
Patent No. 5872226

## GENERAL INFORMATION:

APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE  
NUMBER OF SEQUENCES: 15

## CORRESPONDENCE ADDRESS:

ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/867.471  
FILING DATE: 02-JUN-1997  
CLASSIFICATION: 536

## PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/439,725  
FILING DATE: 12-MAY-1995

## ATTORNEY/AGENT INFORMATION:

NAME: Haile, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/047001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 617/678-5099

INFORMATION FOR SEQ ID NO: 10:

## SEQUENCE CHARACTERISTICS:

LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-867-471-10

Query Match 100.0%; Score 785; DB 2; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-83;

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAPPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOAEER 60

Db 10 PALPEDGSGAPPPGHFKPKRLKCKNGGFFLRHPDGRVGVREKSDPHIKLOAEER 69

QY 61 GVSINGVCANRYLANKEDGRLLASRCVYDECFEERLESNNYTSRRKYSWYALKR 120

Db 70 GVSINGVCANRYLANKEDGRLLASRCVYDECFEERLESNNYTSRRKYSWYALKR 129

QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146

Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 15

US-08-438-439C-14  
Sequence 14, Application US/08438439C  
Patent No. 5876967

## GENERAL INFORMATION:

APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-2 AND METHODS OF USE  
NUMBER OF SEQUENCES: 25  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037

COMPUTER READABLE FORM:

MEDIUM TYPE: IBM PC compatible

COMPUTER: IBM PC compatible

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/438,439C  
FILING DATE: May 12, 1995  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Halle, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/046001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-5099  
INFORMATION FOR SEQ ID NO: 14:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-438-439C-14

Query Match 100.0%; Score 785; DB 2; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.3e-83;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 60  
|||||  
DB 10 PALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVDGVREKSDPHIKLOLAER 69  
|||||  
OY 61 GVSISIKGCANRYLAKMKEDGRLLASKCVTDEGFEFFERLESNNYNTYRSRKYTSWYVALKR 120  
|||||  
DB 70 GVSISIKGCANRYLAKMKEDGRLLASKCVTDEGFEFFERLESNNYNTYRSRKYTSWYVALKR 129  
|||||  
OY 121 TGOYKLGSKTGPQKAILFLPMASAKS 146  
|||||  
DB 130 TGOYKLGSKTGPQKAILFLPMASAKS 155  
|||||

Search completed: December 4, 2002, 11:13:40  
Job time : 12.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OW protein - protein search, using sw model

Run on: December 4, 2002, 11:09:48 ; Search time 7.5 Seconds

(without alignments)  
316.184 Million cell updates/sec

Title: US-09-886-856-4

Perfect score: 1 PALPEGGSGAFPPGHRKDP.....GSKTGPQKAILFLPMSAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 103943 seqs, 16242309 residues

Total number of hits satisfying chosen parameters: 103943

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database: Published\_Applications\_AA:\*

1: /cgn2\_6/ptodata/1/pubpaa/US08\_NEW\_PUB.pep.\*  
2: /cgn2\_6/ptodata/1/pubpaa/PCF\_NEW\_PUB.pep.\*  
3: /cgn2\_6/ptodata/1/pubpaa/US06\_NEW\_PUB.pep.\*  
4: /cgn2\_6/ptodata/1/pubpaa/US06\_PUBCOMB.pep.\*  
5: /cgn2\_6/ptodata/1/pubpaa/US07\_NEW\_PUB.pep.\*  
6: /cgn2\_6/ptodata/1/pubpaa/US07\_PUBCOMB.pep.\*  
7: /cgn2\_6/ptodata/1/pubpaa/PCF\_US07\_PUBCOMB.pep.\*  
8: /cgn2\_6/ptodata/1/pubpaa/US08\_NEW\_PUB.pep.\*  
9: /cgn2\_6/ptodata/1/pubpaa/US09\_NEW\_PUB.pep.\*  
10: /cgn2\_6/ptodata/1/pubpaa/US10\_PUBCOMB.pep.\*  
11: /cgn2\_6/ptodata/1/pubpaa/US10\_PUBCOMB.pep.\*  
12: /cgn2\_6/ptodata/1/pubpaa/US10\_PUBCOMB.pep.\*  
13: /cgn2\_6/ptodata/1/pubpaa/US60\_NEW\_PUB.pep.\*  
14: /cgn2\_6/ptodata/1/pubpaa/US60\_PUBCOMB.pep.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	785	100.0	146	9	US-10-131-965-3
2	785	100.0	146	10	US-09-802-365-4
3	785	100.0	146	10	US-09-886-856-4
4	785	100.0	155	10	US-09-823-485-5
5	785	100.0	155	10	US-09-802-365-8
6	785	100.0	155	10	US-09-251-263-10
7	785	100.0	155	10	US-09-425-021-10
8	785	100.0	155	10	US-09-886-856-8
9	785	100.0	155	10	US-09-749-728B-7
10	785	100.0	158	10	US-09-826-210-2
11	785	100.0	159	10	US-09-934-706-2
12	785	100.0	210	10	US-09-902-773A-4
13	785	100.0	501	10	US-09-934-706-4
14	776	98.9	146	9	US-10-131-965-5
15	776	98.9	146	10	US-09-802-365-2
16	776	98.9	146	10	US-09-771-302-2
17	776	98.9	146	10	US-09-886-856-2
18	776	98.9	155	10	US-09-802-365-6
19	776	98.9	155	10	US-09-886-856-6

20	763	97.2	150	12	US-10-016-447-8	Sequence 8, Appl1
21	720	91.7	134	9	US-09-901-938-24	Sequence 24, Appl1
22	386.5	49.2	153	10	US-09-822-485-4	Sequence 4, Appl1
23	386	49.2	141	9	US-09-929-945-7	Sequence 7, Appl1
24	386	49.2	141	10	US-09-929-918-7	Sequence 7, Appl1
25	386	49.2	154	9	US-09-929-945-8	Sequence 8, Appl1
26	386	49.2	155	9	US-09-929-945-2	Sequence 2, Appl1
27	386	49.2	155	10	US-09-284-663A-9	Sequence 9, Appl1
28	386	49.2	155	10	US-09-902-773A-3	Sequence 3, Appl1
29	386	49.2	155	10	US-09-251-263-9	Sequence 9, Appl1
30	386	49.2	155	10	US-09-425-021-9	Sequence 9, Appl1
31	386	49.2	155	10	US-09-929-918-5	Sequence 2, Appl1
32	386	49.2	155	10	US-09-929-918-11	Sequence 11, Appl1
33	379	48.3	137	9	US-09-901-938-23	Sequence 23, Appl1
34	370	47.1	140	9	US-10-131-965-1	Sequence 1, Appl1
35	370	47.1	149	12	US-10-016-447-9	Sequence 9, Appl1
36	366	46.6	135	9	US-09-929-945-5	Sequence 5, Appl1
37	366	46.6	135	10	US-09-929-918-5	Sequence 5, Appl1
38	357	45.5	140	9	US-10-131-965-2	Sequence 2, Appl1
39	346	44.1	158	12	US-10-016-447-18	Sequence 18, Appl1
40	317.5	40.4	155	10	US-09-425-021-24	Sequence 24, Appl1
41	250.5	31.9	206	10	US-09-251-263-13	Sequence 13, Appl1
42	249	31.7	130	9	US-09-901-938-26	Sequence 26, Appl1
43	249	31.7	198	10	US-09-251-263-14	Sequence 14, Appl1
44	249	31.7	198	12	US-10-016-447-12	Sequence 12, Appl1
45	249	31.7	207	9	US-10-131-965-10	Sequence 10, Appl1

## ALIGNMENTS

RESULT 1  
US-10-131-965-3  
; Sequence 3, Application US/10131965  
; Patent No. US20020165160A1  
; GENERAL INFORMATION:  
; APPLICANT: Whitehouse, Martha J.  
; APPLICANT: Kavanaugh, Michael W.  
; TITLE OF INVENTION: Antigenically Effective Unit Dose of FGF and Method of  
; FILE OF INVENTION: Administering  
; FILE REFERENCE: 1296/12169US05  
; CURRENT APPLICATION NUMBER: US/10/131,965  
; CURRENT FILING DATE: 2002-04-25  
; PRIOR APPLICATION NUMBER: US/09/417,721  
; PRIOR FILING DATE: 1999-10-13  
; PRIOR APPLICATION NUMBER: 60/104,103  
; PRIOR FILING DATE: 1998-10-13  
; NUMBER OF SEQ ID NOS: 15  
; SOFTWARE: Patentln Ver. 2.0  
; SEQ ID NO 3  
; LENGTH: 146  
; TYPE: PRT  
; ORGANISM: Human FGF-2  
US-10-131-965-3

Query Match 100.0%; Score 785; DB 9; Length 146;  
Best Local Similarity 100.0%; Pred. No. 9.6e-75;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 PALPEGGSGAFPPGHRKDKRKYCKNGGFFLHPGGRVDGVRKSDPIKIQLOAEER 60  
|||||  
DB 1 PALPEGGSGAFPPGHRKDKRKYCKNGGFFLHPGGRVDGVRKSDPIKIQLOAEER 60  
|||||  
QY 61 GVSISIKVCANRILAMKEDRLASKCVTECEFFERLESNNYTRSKRYTSMYALKR 120  
|||||  
DB 61 GVSISIKVCANRILAMKEDRLASKCVTECEFFERLESNNYTRSKRYTSMYALKR 120  
|||||  
QY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
|||||  
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146  
|||||  
RESULT 2

```
US-09-802-365-4
: Sequence 4, Application US/09802365
: Patent No. US20020032153A1
: GENERAL INFORMATION:
: APPLICANT: Whitehouse, Martha Jo
: TITLE OF INVENTION: Methods and Compositions for the
: TITLE OF INVENTION: Treatment and Prevention of Erectile Dysfunction
: FILE REFERENCE: 1671.003
: CURRENT APPLICATION NUMBER: US/09/802,365
: CURRENT FILING DATE: 2001-03-09
: PRIOR APPLICATION NUMBER: 60/188,480
: PRIOR FILING DATE: 2000-03-10
: PRIOR APPLICATION NUMBER: 60/203,415
: PRIOR FILING DATE: 2000-05-11
: NUMBER OF SEQ ID NOS: 9
: SOFTWARE: FastSeq for Windows Version 4.0
: SEQ ID NO 4
: LENGTH: 146
: TYPE: PRT
: ORGANISM: Homo sapiens
US-09-802-365-4

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 146;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSGAAPPFGHFDPKRLCYCKNGGFFLRHPDGRVDSVREKSPDHILQLOAER 60
DB 1 PALPDDGSGAAPPFGHFDPKRLCYCKNGGFFLRHPDGRVDSVREKSPDHILQLOAER 60
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 3
US-09-886-856-4
: Sequence 4, Application US/09886856
: Patent No. US20020115603A1
: GENERAL INFORMATION:
: APPLICANT: Whitehouse, Martha Jo
: TITLE OF INVENTION: Methods and Compositions for the
: TITLE OF INVENTION: Treatment of Peripheral Artery Disease
: FILE REFERENCE: PPI6090.004
: CURRENT APPLICATION NUMBER: US/09/886,856
: CURRENT FILING DATE: 2001-06-21
: PRIOR APPLICATION NUMBER: 60/213,504
: PRIOR FILING DATE: 2000-06-22
: PRIOR APPLICATION NUMBER: 60/264,572
: PRIOR FILING DATE: 2000-01-26
: PRIOR APPLICATION NUMBER: 60/276,549
: PRIOR FILING DATE: 2001-03-16
: NUMBER OF SEQ ID NOS: 9
: SOFTWARE: FastSeq for Windows Version 4.0
: SEQ ID NO 4
: LENGTH: 146
: TYPE: PRT
: ORGANISM: Homo sapiens
US-09-886-856-4

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 146;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSGAAPPFGHFDPKRLCYCKNGGFFLRHPDGRVDSVREKSPDHILQLOAER 60
DB 1 PALPDDGSGAAPPFGHFDPKRLCYCKNGGFFLRHPDGRVDSVREKSPDHILQLOAER 60
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
```

```
DB 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

RESULT 4
US-09-822-485-5
: Sequence 5, Application US/09822485
: Patent No. US20020001825A1
: GENERAL INFORMATION:
: APPLICANT: Itoh, No. US20020001825A1uyuki
: TITLE OF INVENTION: NO. US20020001825A1el Fibroblast Growth Factor-Like Polypeptid
: FILE REFERENCE: 08035.0001-01000
: CURRENT APPLICATION NUMBER: US/09/822,485
: CURRENT FILING DATE: 2001-04-02
: NUMBER OF SEQ ID NOS: 35
: SOFTWARE: PatentIn Ver. 2.0
: SEQ ID NO 5
: LENGTH: 155
: TYPE: PRT
: ORGANISM: Homo sapiens
: PUBLICATION INFORMATION:
: JOURNAL: EMBO J.
: VOLUME: 5
: PAGES: 2523-2528
: DATE: 1986
US-09-822-485-5

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 155;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSGAAPPFGHFDPKRLCYCKNGGFFLRHPDGRVDSVREKSPDHILQLOAER 60
DB 10 PALPDDGSGAAPPFGHFDPKRLCYCKNGGFFLRHPDGRVDSVREKSPDHILQLOAER 69
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 70 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 5
US-09-802-365-8
: Sequence 8, Application US/09802365
: Patent No. US20020032153A1
: GENERAL INFORMATION:
: APPLICANT: Whitehouse, Martha Jo
: TITLE OF INVENTION: Methods and Compositions for the
: TITLE OF INVENTION: Treatment and Prevention of Erectile Dysfunction
: FILE REFERENCE: 1671.003
: CURRENT APPLICATION NUMBER: US/09/802,365
: CURRENT FILING DATE: 2001-03-09
: PRIOR APPLICATION NUMBER: 60/188,480
: PRIOR FILING DATE: 2000-03-10
: PRIOR APPLICATION NUMBER: 60/203,415
: PRIOR FILING DATE: 2000-05-11
: NUMBER OF SEQ ID NOS: 9
: SOFTWARE: FastSeq for Windows Version 4.0
: SEQ ID NO 8
: LENGTH: 155
: TYPE: PRT
: ORGANISM: Homo sapiens
US-09-802-365-8

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 155;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
```

Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 60  
Db 10 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 69

QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
Db 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129

QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 6  
US-09-251-263-10  
; Sequence 10, Application US/09251263  
; Patent No. US20020052477A1  
; GENERAL INFORMATION:  
; APPLICANT: Nathans, Jeremy  
; APPLICANT: Smallwood, Philip M.  
; APPLICANT: Macke, Jennifer P.  
; TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
; TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE  
; FILE REFERENCE: 07265/047003  
; CURRENT APPLICATION NUMBER: US/09/251,263  
; CURRENT FILING DATE: 1999-02-16  
; EARLIER FILING DATE: 1997-06-02  
; EARLIER FILING DATE: 1995-05-12  
; EARLIER APPLICATION NUMBER: 08/439,725  
; NUMBER OF SEQ ID NOS: 15  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 10  
; LENGTH: 155  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-251-263-10

Query Match 100.0%; Score 785; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1e-74;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 60  
Db 10 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 69

QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
Db 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129

QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 7  
US-09-425-021-10  
; Sequence 10, Application US/09425021  
; Patent No. US20020076748A1  
; GENERAL INFORMATION:  
; APPLICANT: Greene, John M.  
; APPLICANT: Rosen, Craig A.  
; TITLE OF INVENTION: Fibroblast Growth Factor 15  
; FILE REFERENCE: PF203D1  
; CURRENT APPLICATION NUMBER: US/09/425,021  
; CURRENT FILING DATE: 1999-10-25  
; EARLIER APPLICATION NUMBER: 09/103,079  
; EARLIER FILING DATE: 1998-06-23  
; NUMBER OF SEQ ID NOS: 32  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 10

LENGTH: 155  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-425-021-10

Query Match 100.0%; Score 785; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1e-74;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 60  
Db 10 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 69

QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
Db 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129

QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 8  
US-09-886-856-8  
; Sequence 8, Application US/09886856  
; Patent No. US20020115603A1  
; GENERAL INFORMATION:  
; APPLICANT: Whitehouse, Martha Jo  
; TITLE OF INVENTION: Methods and Compositions for the  
; TITLE OF INVENTION: Treatment of Peripheral Artery Disease  
; FILE REFERENCE: P16090.004  
; CURRENT APPLICATION NUMBER: US/09/886,856  
; CURRENT FILING DATE: 2001-06-21  
; PRIOR APPLICATION NUMBER: 60/213,504  
; PRIOR FILING DATE: 2000-06-22  
; PRIOR APPLICATION NUMBER: 60/264,572  
; PRIOR FILING DATE: 2000-01-26  
; PRIOR APPLICATION NUMBER: 60/276,549  
; PRIOR FILING DATE: 2001-03-16  
; NUMBER OF SEQ ID NOS: 9  
; SOFTWARE: FastSeq for Windows Version 4.0  
; SEQ ID NO 8  
; LENGTH: 155  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
US-09-886-856-8

Query Match 100.0%; Score 785; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1e-74;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 60  
Db 10 PALPEDGSGAFPFGHFKDPKRLKCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 69

QY 61 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120  
Db 70 GVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129

QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
Db 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 9  
US-09-749-7288-7  
; Sequence 7, Application US/09749728B  
; Patent No. US20020142457A1  
; GENERAL INFORMATION:  
; APPLICANT: Umezawa, Akihito  
; APPLICANT: Hata, Jun-ichi  
; APPLICANT: Fukuda, Keiichi  
; APPLICANT: Ogawa, Satoshi

```

: APPLICANT: Sakurada, Kazuhiro
: APPLICANT: Gojo, Satoshi
: APPLICANT: Yamada, Yoji
: TITLE OF INVENTION: THE CELL HAVING THE POTENTIALITY OF DIFFERENTIATION INTO CARDIOMY
: FILE REFERENCE: 00766.000043
: CURRENT APPLICATION NUMBER: US/09/749,728B
: PRIOR FILING DATE: 2001-09-17
: PRIOR APPLICATION NUMBER: H11-372826
: PRIOR FILING DATE: 1999-12-28
: PRIOR APPLICATION NUMBER: PCT-JP00-01148
: PRIOR FILING DATE: 2000-02-28
: PRIOR APPLICATION NUMBER: PCT-JP00-07741
: PRIOR FILING DATE: 2000-11-02
: NUMBER OF SEQ ID NOS: 80
: SOFTWARE: PatentIn Ver.2.0
: SEQ ID NO: 7
: LENGTH: 155
: TYPE: PRT
: ORGANISM: Homo sapiens
: US-09-749-728B-7

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 155;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSGAAPPFGHFDPRKRLKCKNGGFLRIHPDGRVDGVRKSPHITLQDAER 60
DB 10 PALPDDGSGAAPPFGHFDPRKRLKCKNGGFLRIHPDGRVDGVRKSPHITLQDAER 69
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120
DB 70 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 129
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 10
US-09-826-210-2
: Sequence 2, Application US/09826210
: Patent No. US20010020004A1
: GENERAL INFORMATION:
: APPLICANT: Springer, Barry A.
: APPLICANT: Pantoliano, Michael W.
: TITLE OF INVENTION: Analogs of Human basic Fibroblast Growth Factor
: FILE REFERENCE: 1503.0220003
: CURRENT APPLICATION NUMBER: US/09/826,210
: PRIOR FILING DATE: 2001-04-05
: PRIOR APPLICATION NUMBER: US 09/220,077
: PRIOR FILING DATE: 1998-12-23
: PRIOR APPLICATION NUMBER: US 60/068,667
: PRIOR FILING DATE: 1997-12-23
: NUMBER OF SEQ ID NOS: 4
: SOFTWARE: PatentIn version 3.0
: SEQ ID NO: 2
: LENGTH: 158
: TYPE: PRT
: ORGANISM: Homo sapiens
: US-09-826-210-2

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 158;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSGAAPPFGHFDPRKRLKCKNGGFLRIHPDGRVDGVRKSPHITLQDAER 60
DB 13 PALPDDGSGAAPPFGHFDPRKRLKCKNGGFLRIHPDGRVDGVRKSPHITLQDAER 72
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120
DB 73 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 132
```

```

OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 133 TGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 11
US-09-934-706-2
: Sequence 2, Application US/09934706
: Patent No. US20020102709A1
: GENERAL INFORMATION:
: APPLICANT: Terumo Corporation
: TITLE OF INVENTION: Functional Hybrid Polypeptide with Collagen-binding
: FILE REFERENCE: 19990120
: CURRENT APPLICATION NUMBER: US/09/934,706
: CURRENT FILING DATE: 2001-08-23
: NUMBER OF SEQ ID NOS: 16
: SOFTWARE:
: SEQ ID NO: 2
: LENGTH: 159
: TYPE: PRT
: ORGANISM: Artificial Sequence
: FEATURE:
: OTHER INFORMATION: Description of Artificial Sequence: Human Basic
: OTHER INFORMATION: Fibroblast Growth Factor with Enterokinase
: NAME/KEY: PEPTIDE
: LOCATION: (1)..(5)
: OTHER INFORMATION: /note="enterokinase recognition sequence"
: NAME/KEY: PEPTIDE
: LOCATION: (6)..(159)
: OTHER INFORMATION: /note="human fibroblast growth factor"
: US-09-934-706-2

Query Match
Best Local Similarity 100.0%; Score 785; DB 10; Length 159;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSGAAPPFGHFDPRKRLKCKNGGFLRIHPDGRVDGVRKSPHITLQDAER 60
DB 14 PALPDDGSGAAPPFGHFDPRKRLKCKNGGFLRIHPDGRVDGVRKSPHITLQDAER 73
OY 61 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 120
DB 74 GVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYALKR 133
OY 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
DB 134 TGQYKLGSKTGPQKAILFLPMSAKS 159

RESULT 12
US-09-902-773A-4
: Sequence 4, Application US/09902773A
: Patent No. US20020034787A1
: GENERAL INFORMATION:
: APPLICANT: HU, JING-SHAN
: APPLICANT: GOCAYNE, JEANNINE D.
: TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-10
: NUMBER OF SEQUENCES: 14
: CORRESPONDENCE ADDRESSES:
: ADDRESSEE: STERNE, KESSLER, GOLDSTEIN & FOX
: STREET: 1100 NEW YORK AVENUE, SUITE 600
: CITY: WASHINGTON
: STATE: DC
: COUNTRY: US
: ZIP: 20005-3934
: COMPUTER READABLE FORM:
: MEDIUM TYPE: Floppy disk
: COMPUTER: IBM PC compatible
: OPERATING SYSTEM: PC-DOS/MS-DOS
: SOFTWARE: PatentIn Release #1.0, Version #1.30
```



```

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/902.773A
FILING DATE: 12-Jul-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/803.926
FILING DATE: 21-FEB-1997
ATTORNEY/AGENT INFORMATION:
NAME: STEEFE, ERIC K.
REGISTRATION NUMBER: 36,688
REFERENCE/DOCKET NUMBER: 1488.0350001
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 371-2600
TELEFAX: (202) 371-2540
INFORMATION FOR SEQ ID NO: 4:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 4:
US-09-902-773A-4

Query Match
Best Local Similarity: 100.0%; Score 785; DB 10; Length 210;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Query 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFRLRIHPDGRVDSVREKSPHILQLQAEER 60
Db 65 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFRLRIHPDGRVDSVREKSPHILQLQAEER 124
QY 61 GVSISIKGVCANRYLAMKEDGRLLASCKVTDECFFERLESNNYNTYRSRKYTSWYALKR 120
Db 125 GVSISIKGVCANRYLAMKEDGRLLASCKVTDECFFERLESNNYNTYRSRKYTSWYALKR 184
QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146
Db 185 TGOYKLGSKTGPQKAILFLPMSAKS 210

RESULT 13
US-09-934-706-4
Sequence 4, Application US/09934706
Patent No. US20020102709A1
GENERAL INFORMATION:
APPLICANT: Teirumo Corporation
TITLE OF INVENTION: Functional Hybrid Polypeptide with Collagen-binding
FILE REFERENCE: 19990120
CURRENT APPLICATION NUMBER: US/09/934.706
CURRENT FILING DATE: 2001-08-23
NUMBER OF SEQ ID NOS: 16
SOFTWARE:
SEQ ID NO 4
LENGTH: 501
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: Description of Artificial Sequence: Hybrid
OTHER INFORMATION: Polypeptide of Human Fibronectin Collagen-Binding
OTHER INFORMATION: Domain and Human Basic Fibroblast Growth Factor
NAME/KEY: INIT_MET
LOCATION: (1)
NAME/KEY: DOMAIN
LOCATION: (2)..(341)
OTHER INFORMATION: /note="human fibronectin collagen-binding domain"
NAME/KEY: PEPTIDE
LOCATION: (343)..(347)
OTHER INFORMATION: /note="enterokinase recognition sequence"
NAME/KEY: (348)..(501)
LOCATION: (348)..(501)
OTHER INFORMATION: /note="human fibroblast growth factor"
```

```

US-09-934-706-4
Query Match
Best Local Similarity: 100.0%; Score 785; DB 10; Length 501;
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Query 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFRLRIHPDGRVDSVREKSPHILQLQAEER 60
Db 356 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFRLRIHPDGRVDSVREKSPHILQLQAEER 415
QY 61 GVSISIKGVCANRYLAMKEDGRLLASCKVTDECFFERLESNNYNTYRSRKYTSWYALKR 120
Db 416 GVSISIKGVCANRYLAMKEDGRLLASCKVTDECFFERLESNNYNTYRSRKYTSWYALKR 475
QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146
Db 476 TGOYKLGSKTGPQKAILFLPMSAKS 501

RESULT 14
US-10-131-965-5
Sequence 5, Application US/10131965
Patent No. US20020165160A1
GENERAL INFORMATION:
APPLICANT: Whitehouse, Martha J.
TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF and Method of
FILE REFERENCE: 1296/12169US05
CURRENT APPLICATION NUMBER: US/10/131.965
CURRENT FILING DATE: 2002-04-25
PRIOR APPLICATION NUMBER: US/09/417.721
PRIOR FILING DATE: 1999-10-13
PRIOR APPLICATION NUMBER: 60/104,103
PRIOR FILING DATE: 1998-10-13
NUMBER OF SEQ ID NOS: 15
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 5
LENGTH: 146
TYPE: PRT
ORGANISM: bovine FGF-2
US-10-131-965-5

Query Match
Best Local Similarity: 98.9%; Score 776; DB 9; Length 146;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFRLRIHPDGRVDSVREKSPHILQLQAEER 60
Db 1 PALPEDGSSGAFPPGHFDPKRLCYCKNGGFRLRIHPDGRVDSVREKSPHILQLQAEER 60
QY 61 GVSISIKGVCANRYLAMKEDGRLLASCKVTDECFFERLESNNYNTYRSRKYTSWYALKR 120
Db 61 GVSISIKGVCANRYLAMKEDGRLLASCKVTDECFFERLESNNYNTYRSRKYTSWYALKR 120
QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146
Db 121 TGOYKLGSKTGPQKAILFLPMSAKS 146

RESULT 15
US-09-802-365-2
Sequence 2, Application US/09802365
Patent No. US20020032153A1
GENERAL INFORMATION:
APPLICANT: Whitehouse, Martha Jo
TITLE OF INVENTION: Methods and Compositions for the
FILE REFERENCE: 1671.003
CURRENT APPLICATION NUMBER: US/09/802.365
CURRENT FILING DATE: 2001-03-09
PRIOR APPLICATION NUMBER: 60/188,480
PRIOR FILING DATE: 2000-03-10
```



GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:09:23 ; Search time 14.5 Seconds  
(without alignments)  
967.974 Million cell updates/sec

Title: US-09-886-856-4

Perfect score: 785  
Sequence: 1 PALPEDGSGAPPPGHFKDP.....GSKTGPCKAILFLPMASAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-Processing: Minimum Match 0%  
Maximum Match 100%

Listing first 45 summaries

Database :  
1: p1r1:\*  
2: p1r2:\*  
3: p1r3:\*  
4: p1r4:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	785	100.0	210	2 A32398	basic fibroblast g
2	776	98.9	157	1 GKBOB	basic fibroblast g
3	770	98.1	146	1 S00185	basic fibroblast g
4	761.5	97.0	154	2 A31674	basic fibroblast g
5	756.5	96.4	154	2 C37360	basic fibroblast g
6	738	94.0	137	2 I46711	fibroblast growth
7	723	92.1	189	2 A48834	basic fibroblast g
8	719.5	91.7	164	2 S31622	basic fibroblast g
9	646	82.3	155	1 A40117	basic fibroblast g
10	427.5	54.5	125	2 A32484	basic fibroblast g
11	396	50.4	155	1 A60721	acidic fibroblast
12	386	49.2	155	1 A33665	acidic fibroblast
13	383.5	48.9	155	2 A60147	acidic fibroblast
14	382	48.7	155	2 S04147	acidic fibroblast
15	382	48.7	155	2 D37360	acidic fibroblast
16	380	48.4	152	2 JH0476	acidic fibroblast
17	378	48.2	155	2 JH0055	acidic fibroblast
18	375	47.8	155	1 GKBOA	acidic fibroblast
19	255	32.5	194	2 JH0100	fibroblast growth
20	252.5	32.2	256	2 JH0100	fibroblast growth
21	250	31.8	208	2 S14192	fibroblast growth
22	249	31.7	208	2 S20102	fibroblast growth
23	248.5	31.7	206	1 TVH085	fibroblast growth
24	248	31.6	220	1 I50588	fibroblast growth
25	245.5	31.3	206	2 JH0100	fibroblast growth
26	241.5	30.8	264	2 A36207	fibroblast growth
27	241.5	30.8	266	2 S68144	fibroblast growth
28	239	30.4	187	2 S23595	embryonic fibroblast
29	237.5	30.3	237	1 S39382	transforming prote

30	237	30.2	245	1 TVMST2	transforming prote
31	236	30.1	239	1 S04742	fibroblast growth
32	235.5	30.0	202	1 TVMSHS	fibroblast growth
33	234.5	29.9	192	2 S54407	embryonic fibroblast
34	233	29.7	267	1 TVH0F5	fibroblast growth
35	216	27.5	208	2 S66486	fibroblast growth
36	216	27.5	208	2 A48137	fibroblast growth
37	210	26.8	211	2 JC7353	fibroblast growth
38	209.5	26.7	194	2 I46610	keratinocyte growth
39	208	26.5	208	2 JC7082	fibroblast growth
40	207.5	26.4	194	1 A36301	fibroblast growth
41	207.5	26.4	194	2 S26049	fibroblast growth
42	207.5	26.4	194	2 S49501	keratinocyte growth
43	206.5	26.3	207	2 JC5940	fibroblast growth
44	205.5	26.2	207	2 JC5941	fibroblast growth
45	204	26.0	212	2 JC7511	fibroblast growth

#### ALIGNMENTS

RESULT 1  
A32398  
basic fibroblast growth factor precursor, 22.5K form - human  
N:Alternate names: bFGF, fibroblast growth factor 2; prostatic growth factor; prosta  
N:Contents: basic fibroblast growth factor, 18K form  
C:Species: Homo sapiens (man)  
C:Date: 31-Jul-1989 #sequence\_revision 31-Dec-1993 #text\_change 21-Jul-2000  
C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824;  
R:Prats, H.; Kachad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Lianzun, P.; Chal  
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989  
A:Title: High molecular mass forms of basic fibroblast growth factor are initiated b  
A:Reference number: A32398; MUID:89184522; PMID:2538817  
A:Accession: A32398  
A:Molecule type: mRNA  
A:Residues: 1-210 <PRA>  
A:Cross-references: GB:004513; NID:q183083; PIDN:AA52531.1; PID:q459811  
R:Shibata, F.; Baird, A.; Florjanczyk, R.Z.  
Growth Factors 4, 277-287, 1991  
A:Title: Functional characterization of the human basic fibroblast growth factor gen  
A:Reference number: A61537; MUID:92110035; PMID:1764264  
A:Accession: A61537  
A:Molecule type: DNA  
A:Residues: 1-114 <SHI>  
A:Note: authors translated the codon GGA for residue 47 as Ala  
R:Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.  
FEBS Lett. 213, 189-194, 1987  
A:Title: Cloning and expression of cDNA encoding human basic fibroblast growth facto  
A:Reference number: A26642; MUID:87162468; PMID:2435575  
A:Accession: A26642  
A:Molecule type: mRNA  
A:Residues: 56-210 <RUR>  
A:Cross-references: GB:M27968; NID:q182562; PIDN:AA52448.1; PID:q182563  
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, F  
EMBO J. 5, 2523-2528, 1986  
A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiza  
A:Reference number: A90924; MUID:87217066; PMID:3472745  
A:Accession: B32878  
A:Molecule type: mRNA  
A:Residues: 56-210 <ABR>  
A:Note: the authors translated the codon GAA for residue 108 as Gly  
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, F  
EMBO J. 5, 2523-2528, 1986  
A:Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organ  
A:Reference number: S00297; MUID:87053817; PMID:3780670  
A:Accession: S00297  
A:Status: not compared with conceptual translation  
A:Molecule type: DNA  
A:Residues: 1-155 <AB2>  
A:Note: the authors translated the codon GAA for residue 108 as Gly  
R:Shimoyama, Y.; Gotch, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.  
Jpn. J. Cancer Res. 82, 1263-1270, 1991  
A:Title: Characterization of high-molecular-mass forms of basic fibroblast growth fe

rcinogenesis.  
A:Reference number: A54316; MUID:92091228; PMID:1721615  
A:Accession: A54316  
A:Molecule type: protein  
A:Residues: 'xx',86-88,'x',90-91,'x',93-95 <SH3>  
A:Experimental source: C-121 hepatocellular carcinoma cell line  
A>Note: sequence extracted from NCBI backbone (NCBI:71595)  
A:Accession: B54316  
A:Molecule type: protein  
A:Residues: 'xxx',19,'x',21-29 <SH2>  
A>Note: sequence extracted from NCBI backbone (NCBI:71594)  
R:Feige, J.J.; Bradley, J.D.; Flyburg, K.; Farris, J.; Consens, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989  
A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation  
A:Reference number: A33624; MUID:90078343; PMID:2592418  
A:Accession: A33624  
A:Status: preliminary  
A:Molecule type: protein  
A:Residues: 57-210 <PEI>  
R:Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.  
Biochem. Biophys. Res. Commun. 142, 702-709, 1987  
A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isoform  
A:Reference number: A25824; MUID:87156686; PMID:2435284  
A:Accession: A25824  
A:Molecule type: protein  
A:Residues: 57-77 <STO>  
A:Experimental source: prostate  
R:Ghenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
Biochem. Biophys. Res. Commun. 135, 541-548, 1986  
A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal  
A:Reference number: A80122; MUID:86186784; PMID:3964259  
A:Accession: B24243  
A:Molecule type: protein  
A:Residues: 65-102,'x',104-105 <GIN>  
A:Experimental source: brain  
R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.  
FEBS Lett. 204, 203-207, 1986  
A:Title: Partial molecular characterization of endothelial cell mitogens from human brain  
A:Reference number: A91364; MUID:86275260; PMID:3732516  
A:Accession: B24301  
A:Molecule type: protein  
A:Residues: 65-88,'x',90-98,'x',100 <GAU>  
R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.  
Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
A:Title: A form of human basic fibroblast growth factor with an extended amino terminus.  
A:Reference number: S42242; MUID:87213238; PMID:3579930  
A:Accession: S42242  
A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 54-210 <SOM>  
A:Cross-references: EMBL:M17599; NID:g183086; PIDN:AAA52534.1; PID:g183087  
R:Patoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.  
Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992  
A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor  
A:Reference number: A55784; MUID:94347757; PMID:7520751  
A:Accession: B55784  
A:Molecule type: protein  
A:Residues: 54-71 <PAN>  
R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.  
Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992  
A:Title: Reverse transcription with nested polymerase chain reaction shows expression of  
A:Reference number: I52267; MUID:93038590; PMID:1417798  
A:Accession: I52267  
A:Status: preliminary; translated from GB/EMBL/DDBJ  
A:Molecule type: mRNA  
A:Residues: 95-182 <RES>  
A:Cross-references: GB:S47380; NID:g256535; PIDN:AD13853.1; PID:g4261553  
A:Experimental source: granulosa cells  
R:Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.  
FEBS Lett. 349, 23-28, 1994  
A:Title: Purification and characterization of the 210-amino acid recombinant basic fibro  
A:Reference number: S46253; MUID:94320639; PMID:8045296

A:Accession: S46253  
A:Molecule type: protein  
A:Residues: 39-53;65-88 <PAT>  
A>Note: recombinant gene expressed in Escherichia coli  
C:Genetics:  
A:Gene: GDB:FGF2; FGFB  
A:Cross-references: GDB:119910; OMIM:134920  
A:Map position: 4q25-4q27  
A:Start codon: CTG  
C:Superfamily: fibroblast growth factor  
C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mit  
F:1-210/Product: basic fibroblast growth factor, 22.5k form #status predicted <MA>  
F:65-210/Product: basic fibroblast growth factor, 18k form #status predicted <MA>  
F:82-86/Region: heparin binding #status predicted  
F:171-174/Region: heparin binding #status predicted  
Query Match 100.0%; Score 785; DB 2; Length 210;  
Best Local Similarity 100.0%; Pred. No. 1,6e-70;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 PALPDDGSGAPPPGHFKDPKRLCKNGGFRIHPDGRVDCVREKSDPHIKLOAEER 60  
|||||  
DB 65 PALPDDGSGAPPPGHFKDPKRLCKNGGFRIHPDGRVDCVREKSDPHIKLOAEER 124  
QY 61 GYVSTKGYCANRYLAKEDGRLASKCVTDECFPERLESNNYNTSRKRYSWYALKR 120  
|||||  
DB 125 GYVSTKGYCANRYLAKEDGRLASKCVTDECFPERLESNNYNTSRKRYSWYALKR 184  
QY 121 TGOYKLGSKTGPGRKALFLPMSAKS 146  
|||||  
DB 165 TGOYKLGSKTGPGRKALFLPMSAKS 210  
RESULT 2  
GKBOB  
basic fibroblast growth factor precursor - bovine (fragment)  
N:Alternate names: bFGF; kidney-derived growth factor; prostatroptin  
C:Species: Bos primigenius taurus (cattle)  
C:Date: 13-Aug-1986 #sequence revision 02-Jun-1995 #text change 24-Nov-1999  
C:Accession: A24663; A32878; A61550; A61551; A60310; A60386; A60316;  
R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; G  
Science 233, 545-548, 1986  
A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic  
A:Reference number: A54290; MUID:86261806; PMID:2425435  
A:Accession: A24663  
A:Molecule type: mRNA  
A:Residues: 3-157 <ABR>  
A:Cross-references: GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050  
A:Experimental source: pituitary gland  
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.  
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986  
A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organizat  
A:Reference number: A90924; MUID:87217066; PMID:3472745  
A:Accession: A32878  
A:Molecule type: mRNA  
A:Residues: 3-157 <ABR>  
R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.  
Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989  
A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purif  
A:Reference number: A33784; MUID:90121211; PMID:2610682  
A:Accession: A33784  
A:Molecule type: protein  
A:Residues: 1-14 <MIL>  
A>Note: demonstration of a possible alternative initiator or splice junction  
R:Bertolini, J.; Hearn, M.T.W.  
Mol. Cell. Endocrinol. 51, 187-199, 1987  
A:Title: Isolation, characterization and tissue localization of an N-terminal-truncat  
A:Reference number: A61550; MUID:87247652; PMID:3596000  
A:Accession: A61550  
A:Molecule type: protein  
A:Residues: 16-35 <BER>  
R:U. O. N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
Mol. Cell. Endocrinol. 49, 189-194, 1987

A:Title: Isolation and partial characterization of basic fibroblast growth factor from  
A:Reference number: A61551; MUID:87162856; PMID:3556754  
A:Accession: A61551  
A:Molecule type: protein  
A:Residues: 27-35,'X',37-41 <OE3>  
A:Experimental source: testes  
A>Note: this form appears to be identical to the renal form  
R:Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Gullilemin, R.  
Regul. Pept. 16, 135-145, 1986  
A:Title: Purification and partial characterization of a mitogenic factor from bovine liver  
A:Reference number: A60310; MUID:87119165; PMID:3809608  
A:Accession: A60310  
A:Molecule type: protein  
A:Residues: 23-35,'X',37-42 <UEN>  
A:Experimental source: liver  
R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Gullilemin, R.  
Biochem. Biophys. Res. Commun. 138, 580-588, 1986  
A:Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.  
A:Reference number: A24819; MUID:86295737; PMID:3741423  
A:Contents: annotation  
A>Note: the amino end of this form was blocked, the peptide composition matched what was  
R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.  
Endocrinology 118, 82-90, 1986  
A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical  
A:Reference number: A61094; MUID:86081530; PMID:3940857  
A:Accession: A61094  
A:Molecule type: protein  
A:Residues: 12-25,27-35,'X',37-40 <GOS>  
A:Experimental source: adrenal gland  
R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denocoy, L.; Klepper, R.; Gospodarowicz, D.  
Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985  
A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and  
A:Reference number: A01386; MUID:86016731; PMID:3863109  
A:Accession: A01386  
A:Molecule type: protein  
A:Residues: 12-157 <ESC>  
A:Experimental source: pituitary gland  
R:Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.  
Regul. Pept. 12, 201-213, 1985  
A:Title: Isolation and partial characterization of an endothelial cell growth factor from  
A:Reference number: A60316; MUID:86095426; PMID:4081126  
A:Accession: A60316  
A:Molecule type: protein  
A:Residues: 27-35,'X',37-43 <BAI>  
A:Experimental source: kidney  
R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.  
Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984  
A:Title: Isolation and partial molecular characterization of pituitary fibroblast growth factor  
A:Reference number: A22054; MUID:84298139; PMID:6591194  
A:Accession: A22054  
A:Molecule type: protein  
A:Residues: 12-26 <BOH>  
A:Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell  
all types in vitro (although B-EGF is 30-100 times more potent than aFGF in stimulating t  
C:Comment: This protein binds heparin more strongly than does aFGF.  
C:Superfamily: fibroblast growth factor  
C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; heparin  
F:1-157/Product: basic fibroblast growth factor, uerine form #status predicted <MNT1>  
F:4-157/Product: basic fibroblast growth factor, pituitary gamma form #status experiment  
F:12-157/Product: basic fibroblast growth factor, pituitary alpha form #status experiment  
F:16-157/Product: basic fibroblast growth factor, pituitary short form #status predicted  
F:27-157/Product: basic fibroblast growth factor, hepatic form #status experimental <MNT6>  
F:29-33,118-121/Region: heparin binding #status predicted  
F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

QY 61 GVSATKGCANRYLAKMEDGRLASKCVTDCFFEEFLSNNTYTSRKYTSWYALAKR 120  
 |||||||  
 Db 72 GVSATKGCANRYLAKMEDGRLASKCVTDCFFEEFLSNNTYTSRKYTSWYALAKR 131  
 |||||||  
 QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 |||||||  
 Db 132 TGOYKLGSKTGPQKAILFLPMSAKS 157  
 |||||||  
 RESULT 3  
 S00185  
 basic fibroblast growth factor - sheep  
 N:Alternate names: prostotrofin  
 C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)  
 C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 C:Accession: S00185  
 R:Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Bu  
 FEMS Lett. 224, 128-132, 1987  
 A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.  
 A:Reference number: S00185; MUID:86055577; PMID:3678486  
 A:Accession: S00185  
 A:Molecule type: protein  
 A:Residues: 1-146 <SH>  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor; heparin binding; mitogen  
 F:107-22/Region: heparin binding #status predicted  
 F:107-110/Region: heparin binding #status predicted  
 Query Match 98.1%; Score 770; DB 1; Length 146;  
 Best Local Similarity 97.9%; Pred. No. 3.2e-69;  
 Matches 143; Conservative 1; Mismatches 2; Indels 0; Gaps 0;  
 QY 1 PALPDDGSSGAPPEGHFQDPKRLCKNGGFLRIHPDGRVDVGVEKSDPHIKLQQAEE 60  
 |||||||  
 Db 1 PALPDDGSSGAPPEGHFQDPKRLCKNGGFLRIHPDGRVDVGVEKSDPHIKLQQAEE 60  
 |||||||  
 QY 61 GVSATKGCANRYLAKMEDGRLASKCVTDCFFEEFLSNNTYTSRKYTSWYALAKR 120  
 |||||||  
 Db 61 GVSATKGCANRYLAKMEDGRLASKCVTDCFFEEFLSNNTYTSRKYTSWYALAKR 120  
 |||||||  
 QY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 |||||||  
 Db 121 TGOYKLGSKTGPQKAILFLPMSAKS 146  
 |||||||  
 RESULT 4  
 A31674  
 basic fibroblast growth factor precursor - rat  
 N:Alternate names: bFGF  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 21-May-1990 #sequence\_revision 21-May-1990 #text\_change 16-Jul-1999  
 C:Accession: A31674; S00876; S24309  
 R:Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A  
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988  
 A:Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast grc  
 A:Reference number: A31674; MUID:89061721; PMID:3196337  
 A:Accession: A31674  
 A:Molecule type: mRNA  
 A:Residues: 1-154 <SH>  
 A:Cross-references: GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286  
 R:Kurikawa, T.; Seno, M.; Igarashi, K.  
 Nucleic Acids Res. 16, 5201-1988  
 A:Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.  
 A:Reference number: S00876; MUID:86262516; PMID:3387229  
 A:Accession: S00876  
 A:Molecule type: mRNA  
 A:Residues: 1-154 <SH>  
 A:Cross-references: EMBL:X07285; NID:g56203; PIDN:CAA30265.1; PID:g56204  
 R:El-Ghoul, A.E.D.; Peterson, J.A.; Myal, Y.; Shiu, R.P.C.  
 Blochim. Biophys. Acta 1131, 314-316, 1992  
 A:Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA  
 A:Reference number: S24309; MUID:92329546; PMID:1378302

r (bFGF) mRNA cc

```

A:Accession: 524309
A:Status: preliminary; translation not shown
A:Molecule type: mRNA
A:Residues: 35-154 <5'3'>
A:Cross-references: EMBL:X61697; NID:g56143; PIDD:CAA43863.1; PID:g56144
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor
E:1-9/Domain: signal sequence #status predicted <Sig>
E:10-154/Product: basic fibroblast growth factor #status predicted <Mat>

```

Query Match	97.0%;	Score 761.5;	DB 2;	Length 154;
Best Local Similarity	97.3%;	Pred. No. 2.4e-68;		
Matches 142;	Conservative 3;	Mismatches 0;	Indels 1;	Gaps 1

**OY**

1 PALPBDGGSGAFPFGHFKDPKRLCYCKNGGFLRIHPDGRVDSREKSIDPHIKLQDAEER 600  
|||||  
|||:  
**D8**

10 PALPEDGG-GAFPPRGHFCDPKRLCYCKNGGFLLRIHPDGRVDGREKSDPHVKLQDAEER 680

```

QY      61  GVSYSIKGVCANRYLAKKEDGRLLASKCYTDECEFFERLSNNYNYRSKRTYSWYALAKR 120
      |||||
      69  GVSYSIKGVCANRYLAKKEDGRLLASKCYTDECEFFERLSNNYNYRSKRTYSWYALAKR 128
      |||||
      Db

```

```
Qy 121 TGQYKLGSKTGPQKAILFLPMSAKS 146
    |||
Db 129 TGQYKLGSKTGPQKAILFLPMSAKS 154
```

RESULT 5  
C37360  
basic fibroblast growth factor - mouse  
C:Species: Mus musculus (house mouse)

CiDate: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
CiAccession: C37360  
RHebert, J.M.; Basillco, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
Rhebert, J.M. 1984. 1984-1985. 1985. 1986. 1987. 1988. 1989. 1990. 1991. 1992. 1993. 1994. 1995. 1996. 1997. 1998. 1999. 2000. 2001. 2002. 2003. 2004. 2005. 2006. 2007. 2008. 2009. 2010. 2011. 2012. 2013. 2014. 2015. 2016. 2017. 2018. 2019. 2020. 2021. 2022. 2023. 2024. 2025. 2026. 2027. 2028. 2029. 2030. 2031. 2032. 2033. 2034. 2035. 2036. 2037. 2038. 2039. 2040. 2041. 2042. 2043. 2044. 2045. 2046. 2047. 2048. 2049. 2050. 2051. 2052. 2053. 2054. 2055. 2056. 2057. 2058. 2059. 2060. 2061. 2062. 2063. 2064. 2065. 2066. 2067. 2068. 2069. 2070. 2071. 2072. 2073. 2074. 2075. 2076. 2077. 2078. 2079. 2080. 2081. 2082. 2083. 2084. 2085. 2086. 2087. 2088. 2089. 2090. 2091. 2092. 2093. 2094. 2095. 2096. 2097. 2098. 2099. 2100. 2101. 2102. 2103. 2104. 2105. 2106. 2107. 2108. 2109. 2110. 2111. 2112. 2113. 2114. 2115. 2116. 2117. 2118. 2119. 2120. 2121. 2122. 2123. 2124. 2125. 2126. 2127. 2128. 2129. 2130. 2131. 2132. 2133. 2134. 2135. 2136. 2137. 2138. 2139. 2140. 2141. 2142. 2143. 2144. 2145. 2146. 2147. 2148. 2149. 2150. 2151. 2152. 2153. 2154. 2155. 2156. 2157. 2158. 2159. 2160. 2161. 2162. 2163. 2164. 2165. 2166. 2167. 2168. 2169. 2170. 2171. 2172. 2173. 2174. 2175. 2176. 2177. 2178. 2179. 2180. 2181. 2182. 2183. 2184. 2185. 2186. 2187. 2188. 2189. 2190. 2191. 2192. 2193. 2194. 2195. 2196. 2197. 2198. 2199. 2200. 2201. 2202. 2203. 2204. 2205. 2206. 2207. 2208. 2209. 2210. 2211. 2212. 2213. 2214. 2215. 2216. 2217. 2218. 2219. 2220. 2221. 2222. 2223. 2224. 2225. 2226. 2227. 2228. 2229. 2230. 2231. 2232. 2233. 2234. 2235. 2236. 2237. 2238. 2239. 2240. 2241. 2242. 2243. 2244. 2245. 2246. 2247. 2248. 2249. 2250. 2251. 2252. 2253. 2254. 2255. 2256. 2257. 2258. 2259. 2260. 2261. 2262. 2263. 2264. 2265. 2266. 2267. 2268. 2269. 2270. 2271. 2272. 2273. 2274. 2275. 2276. 2277. 2278. 2279. 2280. 2281. 2282. 2283. 2284. 2285. 2286. 2287. 2288. 2289. 2290. 2291. 2292. 2293. 2294. 2295. 2296. 2297. 2298. 2299. 2300. 2301. 2302. 2303. 2304. 2305. 2306. 2307. 2308. 2309. 2310. 2311. 2312. 2313. 2314. 2315. 2316. 2317. 2318. 2319. 2320. 2321. 2322. 2323. 2324. 2325. 2326. 2327. 2328. 2329. 2330. 2331. 2332. 2333. 2334. 2335. 2336. 2337. 2338. 2339. 2340. 2341. 2342. 2343. 2344. 2345. 2346. 2347. 2348. 2349. 2350. 2351. 2352. 2353. 2354. 2355. 2356. 2357. 2358. 2359. 2360. 2361. 2362. 2363. 2364. 2365. 2366. 2367. 2368. 2369. 2370. 2371. 2372. 2373. 2374. 2375. 2376. 2377. 2378. 2379. 2380. 2381. 2382. 2383. 2384. 2385. 2386. 2387. 2388. 2389. 2390. 2391. 2392. 2393. 2394. 2395. 2396. 2397. 2398. 2399. 2400. 2401. 2402. 2403. 2404. 2405. 2406. 2407. 2408. 2409. 2410. 2411. 2412. 2413. 2414. 2415. 2416. 2417. 2418. 2419. 2420. 2421. 2422. 2423. 2424. 2425. 2426. 2427. 2428. 2429. 2430. 2431. 2432. 2433. 2434. 2435. 2436. 2437. 2438. 2439. 2440. 2441. 2442. 2443. 2444. 2445. 2446. 2447. 2448. 2449. 2450. 2451. 2452. 2453. 2454. 2455. 2456. 2457. 2458. 2459. 2460. 2461. 2462. 2463. 2464. 2465. 2466. 2467. 2468. 2469. 2470. 2471. 2472. 2473. 2474. 2475. 2476. 2477. 2478. 2479. 2480. 2481. 2482. 2483. 2484. 2485. 2486. 2487. 2488. 2489. 2490. 2491. 2492. 2493. 2494. 2495. 2496. 2497. 2498. 2499. 2500. 2501. 2502. 2503. 2504. 2505. 2506. 2507. 2508. 2509. 2510. 2511. 2512. 2513. 2514. 2515. 2516. 2517. 2518. 2519. 2520. 2521. 2522. 2523. 2524. 2525. 2526. 2527. 2528. 2529. 2530. 2531. 2532. 2533. 2534. 2535. 2536. 2537. 2538. 2539. 2540. 2541. 2542. 2543. 2544. 2545. 2546. 2547. 2548. 2549. 2550. 2551. 2552. 2553. 2554. 2555. 2556. 2557. 2558. 2559. 2560. 2561. 2562. 2563. 2564. 2565. 2566. 2567. 2568. 2569. 2570. 2571. 2572. 2573. 2574. 2575. 2576. 2577. 2578. 2579. 2580. 2581. 2582. 2583. 2584. 2585. 2586. 2587. 2588. 2589. 2590. 2591. 2592. 2593. 2594. 2595. 2596. 2597. 2598. 2599. 2600. 2601. 2602. 2603. 2604. 2605. 2606. 2607. 2608. 2609. 2610. 2611. 2612. 2613. 2614. 2615. 2616. 2617. 2618. 2619. 2620. 2621. 2622. 2623. 2624. 2625. 2626. 2627. 2628. 2629. 2630. 2631. 2632. 2633. 2634. 2635. 2636. 2637. 2638. 2639. 2640. 2641. 2642. 2643. 2644. 2645. 2646. 2647. 2648. 2649

A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
A:Reference number: A37360; MUID:90201563; PMID:2318343  
A:Accession: C37360

A:Status: preliminary  
A:Molecule type: mRNA  
A:Residues: 1-154 <HEB>

A: Cross-references: NID:q193296; PIDD:AAA37621.1; PID:g3092339  
C: Superfamily: fibroblast growth factor

Query Match	96.4%	Score 756.5	DB 2	Length 154
Best Local Similarity	96.6%	Pred. No. 7.5e-68		
Matches 141; Conservative	4	Mismatches 0	Indels 1	Gaps 1

01 PALPBDGGSGAEPFGHKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKLOLQAEER 600

61 GVSIFKGVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120

[illegible]

Db 129 TGQYKLSKRTGPGQKALFELPSAKS 154

fibroblast growth factor - rabbit (fragment)  
I46711  
C:Species: Oryctolagus cuniculus (domestic rabbit)

C/Date: 14-Feb-1999 #sequence\_revision 14-Feb-1999  
C/Accession: 146711 #text\_change 16-Jul-1999  
R/Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liau, G.

A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rabbit  
A:Reference number: I46711; PMID:93343209; PMID:8342599

A;Status: preliminary; translated from GB/EMBL/DBDJ

A:Molecule type: mRNA  
A:Residues: 1-137 <MIN>  
A:Cross-references: GB:112034; NTD:g165014; PTDN:AA31248.1; PTD:g165015  
C:Superfamily: fibroblast growth factor

Query Match	94.0%;	Score 738;	DB 2;	Length 137;
Best Local Similarity	99.3%;	Pred. NO. 4.5e-66;		
Matches 136; Conservative	1;	Mismatches 0;	Indels 0;	Gaps 0;

[illegible]

QY 61 GVSISIKGVCANRYLAKNKEDGRLLASKCQTDECEFFERLEENNNTYRSRKYTSWYALKR 120

Db 61 GVSISIKGVCANRYLAKNKEDGRLLASKCQTDECEFFERLEENNNTYRSRKSSSWYVALKR 120

```

0Y      121 TGQYKLGSKTGPQKAI 137
        |||||
Db      121 TGQYKLGSKTGPQKAI 137

```

RESULT 7  
A48834

```
basic fibroblast growth factor - chicken
Cispecies: Gallus gallus (chicken)
CDate: 01-Dec-1993 #sequence_revision 18-Nov-1994
#text_change 16-Jul-1999
```

R; Borja, A. Z.; Melters, C.; Zeller, R. *Dev. Biol.* 157, 110-118, 1993

A:Reference number: A48834; MUID:93246053; PMID:7683281  
A:Accession: A48834  
A:Status: preliminary

A:Residues: 1-189 <BOR>  
A:Molecule type: nucleic acid  
A:Experimental source: embryo

R. Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.  
Development 109, 387-393, 1990

A:Reference number: S23636; MUID:90382254; PMID:401202  
A:Accession: S23636

A;Molecule type: DNA  
A;Residues: 95-128 <MIT>  
A;Accession: W60004  
A;Database: NID-CCONEE  
A;Database: STDV-0240120-1  
A;Database: STD-CCONEE

C;Superfamily: fibroblast growth factor

[illegible]

Db 44 PALPDDGGGAPPPGHFKDPKRLCYCKNGGFLRINPDGRVDGVREKSDPHIKLQLOAEER 10

DB 01 G S I N G V C A N R I L A M K E D G R L L A S K C V I D E C F E F E R E S N N I N I T S R K I I S W Y A L A K R 12  
 | :  
 104 G V S I K G V S A N B F L A M K E D G R L L A K C A T E E C F E F E R E S N N I N I T S R K I S D W Y A L A K R 16

QY	121	TGQYKLGSKTGPQKAILFLEMSAKS	146

## RESULT 8

```

bas: fibroblastgrowth_factor - short-tailed opossum (Monodelphis domestica) (fragment)
C:SJ: les: Monodelphis domestica
C:De: 20-Feb-1995 #Sequence_revision 20-Feb-1995 #text_change 12-Apr-1995

```

R;Ku ewitt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.



A:Title: Structural analysis of the gene for human acidic fibroblast growth factor.  
A:Reference number: A33665; MUID:90073637; PMID:2590193  
A:Accession: A33665  
A:Molecule type: DNA  
A:Residues: 1-155 <MER>  
A:Cross-references: GB:M30491  
R:Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M.  
Mol. Cell. Biol. 9, 2387-2395, 1989  
A:Title: Cloning of the gene coding for human class I heparin-binding growth factor and  
A:Reference number: A32316; MUID:89433957; PMID:2474753  
A:Accession: A32316  
A:Molecule type: DNA  
A:Residues: 1-155 <MAN>  
A:Cross-references: GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768  
R:Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.; Chiu, I.M.  
Oncogene 6, 1521-1529, 1991  
A:Title: Cloning and sequence analysis of the human acidic fibroblast growth factor gene  
A:Reference number: S18217; MUID:92019819; PMID:1717925  
A:Accession: S18217  
A:Molecule type: DNA  
A:Residues: 1-155 <MA2>  
A:Cross-references: EMBL:M23086  
R:Chiu, I.M.; Wang, W.P.; Lehtoma, K.  
Oncogene 5, 755-762, 1990  
A:Title: Alternative splicing generates two forms of mRNA coding for human heparin-binding  
A:Reference number: A43804; MUID:90265618; PMID:1693186  
A:Accession: A43804  
A:Molecule type: mRNA  
A:Residues: 1-155 <CH1>  
A:Cross-references: EMBL:X51943; NID:g32435; PIDN:CMA6206.1; PID:g32436  
R:Uye, M.; Howk, R.; Burges, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.  
Science 233, 541-545, 1986  
A:Title: Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosomal  
A:Reference number: A24662; MUID:86261805; PMID:3523756  
A:Accession: A24662  
A:Molecule type: mRNA  
A:Residues: 1-155 <TA>  
A:Cross-references: GB:M13361; NID:g181941; PIDN:AAA792245.1; PID:g181942  
R:Yu, Y.L.; Kna, H.; Goldman, J.A.; Miggelsen, A.A.J.; Goetzl, E.J.; Turck, C.W.  
J. Exp. Med. 175, 1073-1080, 1992  
A:Title: An acidic fibroblast growth factor protein generated by alternate splicing acts  
A:Reference number: JH0707; MUID:92202857; PMID:1372643  
A:Accession: JH0707  
A:Molecule type: mRNA  
A:Residues: 1-155 <GV>  
A:Cross-references: GB:X65778; NID:g396163; PIDN:CMA4666.1; PID:g396164  
R:Payson, R.A.; Canatani, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu,  
Nucleic Acids Res. 21, 489-495, 1993  
A:Title: Cloning of two novel forms of human acidic fibroblast growth factor (afGF) mRNA  
A:Reference number: S35353; MUID:93181239; PMID:7680120  
A:Accession: S35353  
A:Molecule type: mRNA  
A:Residues: 1-58 <PA>  
A:Cross-references: GB:L01485  
A:Accession: S35356  
A:Molecule type: mRNA  
A:Status: translation not shown  
A:Molecule type: mRNA  
A:Residues: 1-58 <PA2>  
A:Cross-references: GB:L01487  
R:Crumley, G.; Dionne, C.A.; Jeye, M.  
Biochem. Biophys. Res. Commun. 171, 7-13, 1990  
A:Title: The gene for human acidic fibroblast growth factor encodes two upstream exons and  
A:Reference number: I39412; MUID:90365758; PMID:2393407  
A:Accession: I39412  
A:Status: translation not shown  
A:Molecule type: mRNA  
A:Residues: 1-40 <RES>  
A:Cross-references: GB:M60515; NID:g178226; PIDN:AAA51672.1; PID:g553170; GB:M60516; NID:  
R:Harper, J.W.; Strydom, D.J.; Lobb, R.R.  
Biochemistry 25, 4097-4103, 1986  
A:Reference number: A23553; MUID:86296647; PMID:2427112  
A:Accession: A23553

```

A:Molecule type: protein
R:Residues: 16-155 <HAR>
R:Gimenez-gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 138, 611-617, 1986
A>Title: The complete amino acid sequence of human brain-derived acidic fibroblast gr
A:Reference number: A24820; MUID:86295741; PMID:3527167
A:Accession: A24820
A:Molecule type: protein
A:Residues: 16-155 <GIM>
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A>Title: Human brain-derived acidic and basic fibroblast growth factors: amino termin
A:Reference number: A90122; MUID:66186784; PMID:33964259
A:Accession: A24243
A:Molecule type: protein
A:Residues: 16-47 <GI2>
A:Experimental source: brain
R:Gautschi, P.; Fritter-Schroder, M.; Bohlen, P.
FEBS Lett. 204, 203-207, 1986
A>Title: Partial molecular characterization of endothelial cell mitogens from human b
A:Reference number: A91364; MUID:86275260; PMID:3732516
A:Accession: A24301
A:Molecule type: protein
A:Residues: 16-30,'X',32-49 <GAU>
R:Gautschi-Sova, P.; Muller, T.; Bohlen, P.
Biochem. Biophys. Res. Commun. 140, 874-880, 1986
A>Title: Amino acid sequence of human acidic fblproblast growth factor.
A:Reference number: A26386; MUID:87048871; PMID:3778488
A:Accession: A26386
A:Molecule type: protein
A:Residues: 16-155 <GA2>
A:Experimental source: Brain
R:Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.
Biochemistry 33, 7193-7202, 1994
A>Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
A:Reference number: A53639; MUID:94271773; PMID:7516183
A:Accession: A53639
A:Molecule type: protein
A:Residues: 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',133-140,'X',142-155
C:Genetics:
A:Gene: GDB:FGF1; FGFA
A:Cross-references: GDB:119909; OMIM:131220
A:Map position: 5q31.3-5q33.2
A:Introns: 57/1; 91/3
C:Superfamily: fibroblast growth factor
C:Keywords: alternative splicing; growth factor; heparin binding
E:16-155/Product: fibroblast growth factor 1 #status experimental <MAT>
F:129/Binding site: carbohydrate (Asn) (covalent) #status absent

Query Match          49.2%; Score 386; DB 1; Length 155;
Best Local Similarity 55.9%; Pred.No.4.7e-31;
Matches 76; Conservative 16; Mismatches 42; Indels 2; Gaps 1;

QY      13 PPGRHKDKRLKCKNGGFRLRHDPGRVDGRAREKSDPHIKLOLAEENGVSIRKVCANR 72
        |||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::
DB      19 PGNNKKRKLLKYCSNGGHFLRIIPDGTVDGFRDSDOHIQLSAESVGEVIYSTETGQ 78
        |||::|||::|||::|||::|||::|||::|||::|||::|||::|||::

QY      73 YIAMEDRGILASKCVTDECFEEERLESNNVTYSRRYT--SVYVALKRIGGYRLGSKT 130
        |||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::
DB      79 YIAMTDGLILGSGPNEECLEFLERLEENHNITYSIKRAEKNFVGKLKNGSCAKRGPR 138
        |||::|||::|||::|||::|||::|||::|||::|||::|||::|||::|||::

QY      131 GPGRKAILELPMSAKS 146
        |||||||::|
DB      139 HYGCARKILFLPLPVSS 154

RESULT 13
A60130
acid: fibroblast growth factor - chicken
N:A1 crate names: endothelial cell growth factor
C:SP les: Gallus gallus (chicken)
C-ID : 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 16-Jul-1999
C:AC ssion: A60130; S02639

```



R:Schmuerch, H.; Risa, W.  
 Development 111, 1143-1154, 1991  
 A:Title: Differentiating and mature neurons express the acidic fibroblast growth factor  
 C:Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C:Accession: A60130; MUID:91347925; PMID:1715259  
 A:Reference number: A60130  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <SCH>  
 A:Cross-references: GB:563263; NID:g234372; PIDN:AA19629.1; PID:g234373  
 R:Risa, W.; Gautschi-Sova, P.; Boehlen, P.  
 EMBO J. 7, 959-962, 1988  
 A:Title: Endothelial cell growth factors in embryonic and adult chick brain are related  
 A:Reference number: 502639; MUID:88296430; PMID:3402441  
 A:Accession: 502639  
 A:Molecule type: protein  
 A:Residues: 22-30, 'X', '32-44, 'X', '46-48 <RIS>  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor

Query Match 48.9%; Score 383.5; DB 2; Length 155;  
 Best Local Similarity 54.5%; Pred. No. 8.4e-31;  
 Matches 78; Conservative 20; Mismatches 40; Indels 5; Gaps 2;

QY 2 ALPDGSGAPPPGHPKPKLYCKNGGFLRHPDGVYDGVREKSDPHIKLOAEERG 61  
 DB 11 ALTRFPG--LPLGNYKPKLYCSNGGFLRHPDGVYDGVREKSDPHIKLOAEERG 67  
 QY 62 VSIKGVCANRYLAMKEDGRLASKCVDECFEERLESNNYNTYRSRYT--SWYVALK 119  
 DB 68 EYIKRSASGYLAMDINGILYQSOLPGECEFLERLENNHYNTYISKHAKDNMFVGLK 127  
 QY 120 RTGQYKLGSKTGPQKAILFLPM 142  
 DB 128 KNGSKLGPFRHYGQKAILFLPL 150

#### RESULT 14

acidic fibroblast growth factor 1 - rat  
 N:Alternate names: heparin-binding growth factor 1  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 28-Feb-1990 #sequence\_revision 28-Feb-1990 #text\_change 16-Jul-1999  
 C:Accession: S04147  
 R:Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.  
 Nucleic Acids Res. 17, 2867, 1989  
 A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).  
 A:Reference number: S04147; MUID:89240051; PMID:2470023  
 A:Accession: S04147  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <GOO>  
 A:Cross-references: EMBL:X14232; NID:g56351; PIDN:CA32448.1; PID:g56352  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor; heparin binding

Query Match 48.7%; Score 382; DB 2; Length 155;  
 Best Local Similarity 55.1%; Pred. No. 1.2e-30;  
 Matches 75; Conservative 17; Mismatches 42; Indels 2; Gaps 1;

QY 13 PGHFKDKRRLKLYCKNGGFLRHPDGVYDGVREKSDPHIKLOAEERGVSIRKVCANR 72  
 DB 19 PLGNKRRKRLKLYCSNGGFLRHPDGVYDGVREKSDPHIKLOAEERGVSIRKVCANR 78  
 QY 73 YLAMKEDGRLASKCVDECFEERLESNNYNTYRSRYT--SWYVALKRTGQYKLGSKT 130  
 DB 79 YLAMDEGLLYGSGTPNECEFLERLENNHYNTYISKHAKDNMFVGLKKNKSCRGPR 138  
 QY 131 GPGKAILFLPM 146  
 DB 139 HYGKAILFLPLPVSS 154

RESULT 15  
 D37360

acidic fibroblast growth factor - mouse  
 N:Alternate names: aFGF; FGF-1  
 C:Species: Mus musculus (house mouse)  
 C:Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C:Accession: D37360; J05231  
 R:Hebert, J.M.; Basillio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
 A:Reference number: A37360; MUID:90201563; PMID:2318343  
 A:Accession: D37360  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <HRB>  
 A:Cross-references: GB:M30641; NID:g193284; PIDN:AAA37618.1; PID:g309236  
 R:Madal, F.; Hackshaw, K.V.; Chiu, I.M.  
 Gene 179, 231-236, 1996  
 A:Title: Cloning and characterization of the mouse Fgf-1 gene.  
 A:Reference number: J05231; MUID:97128312; PMID:8972905  
 A:Accession: J05231  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-155 <MAD>  
 A:Cross-references: GB:U36456  
 C:Comment: This protein is an inducer of neovascularization in angiotensin disease Inc  
 C:Genetics:  
 A:Gene: Fgf-1  
 A:Introns: 57/1; 91/3  
 C:Superfamily: fibroblast growth factor

Query Match 48.7%; Score 382; DB 2; Length 155;  
 Best Local Similarity 55.1%; Pred. No. 1.2e-30;  
 Matches 75; Conservative 17; Mismatches 42; Indels 2; Gaps 1;

QY 13 PGHFKDKRRLKLYCKNGGFLRHPDGVYDGVREKSDPHIKLOAEERGVSIRKVCANR 72  
 DB 19 PLGNKRRKRLKLYCSNGGFLRHPDGVYDGVREKSDPHIKLOAEERGVSIRKVCANR 78  
 QY 73 YLAMKEDGRLASKCVDECFEERLESNNYNTYRSRYT--SWYVALKRTGQYKLGSKT 130  
 DB 79 YLAMDEGLLYGSGTPNECEFLERLENNHYNTYISKHAKDNMFVGLKKNKSCRGPR 138  
 QY 131 GPGKAILFLPM 146  
 DB 139 HYGKAILFLPLPVSS 154

Search completed: December 4, 2002, 11:12:48  
 Job time: 15.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:06:33 ; Search time 8.5 Seconds  
(without alignments)  
712.417 Million cell updates/sec

Title: US-09-886-856-4

Perfect score: 785  
Sequence: 1 PALPDDGSGAFPPGHFKDP.....GSKTPGQKALFLPMSAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 112892 segs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 08  
Maximum Match 1008  
Listing first 45 summaries

Database : SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	785	100.0	155	1	FGF2_HUMAN
2	776	98.9	155	1	FGF2_BOVIN
3	770	98.1	155	1	FGF2_SHEEP
4	761.5	97.0	154	1	FGF2_RAT
5	756.5	96.4	154	1	FGF2_MOUSE
6	738	94.0	137	1	FGF2_RABIT
7	723	92.1	158	1	FGF2_CHICK
8	719.5	91.7	156	1	FGF2_MONDO
9	646	82.3	155	1	FGF2_XENTLA
10	396	50.4	155	1	FGF1_MESAU
11	386	49.2	155	1	FGF1_HUMAN
12	383.5	48.9	155	1	FGF1_CHICK
13	382	48.7	155	1	FGF1_MOUSE
14	380	48.4	152	1	FGF1_PIG
15	375	47.8	155	1	FGF1_BOVIN
16	255	32.5	194	1	FGF4_CHICK
17	252.5	32.2	256	1	FGF3_BRARE
18	250	31.8	208	1	FGF6_MOUSE
19	249	31.7	208	1	FGF6_HUMAN
20	248.5	31.7	206	1	FGF4_HUMAN
21	248	31.6	220	1	FGF3_CHICK
22	246.5	31.4	206	1	FGF4_BOVIN
23	241.5	30.8	264	1	FGF5_MOUSE
24	241.5	30.8	266	1	FGF5_RAT
25	239	30.4	187	1	FGF4_XENTLA
26	237.5	30.3	237	1	FGF3_XENTLA
27	237	30.2	245	1	FGF3_MOUSE
28	236	30.0	239	1	FGF3_HUMAN
29	235.5	30.0	202	1	FGF4_MOUSE
30	234.5	29.9	192	1	FGF3_XENTLA
31	233	29.7	260	1	FGF5_HUMAN
32	216	27.5	208	1	FGF3_HUMAN
33	216	27.5	208	1	FGF9_MOUSE

34	216	27.5	208	1	FGF9_RAT	P36364 rattus norv
35	212.5	27.1	209	1	FGF9_XENTLA	O91875 xenopus lae
36	210.5	26.8	194	1	FGF7_CANFA	P79150 canis famli
37	210	26.8	211	1	FGF8_HUMAN	O9np95 homo sapien
38	209.5	26.7	194	1	FGF7_MOUSE	P36363 mus musculu
39	207.5	26.4	194	1	FGF7_HUMAN	P21781 homo sapien
40	207.5	26.4	194	1	FGF7_SHEEP	P48808 oviss aries
41	206.5	26.3	207	1	FGF8_RAT	O54769 rattus norv
42	205.5	26.2	207	1	FGF8_HUMAN	O43320 homo sapien
43	204.5	26.1	194	1	FGF7_PIG	O9n198 sus scrofa
44	203	25.9	208	1	FGF4_HUMAN	O15520 homo sapien
45	203	25.9	215	1	FGF4_RAT	P70492 rattus norv

## ALIGNMENTS

RESULT 1  
FGF2\_HUMAN  
ID P09038; STANDARD; PRT; 155 AA.  
AC P09038;  
DT 01-NOV-1988 (Rel. 09, Created)  
DT 01-NOV-1988 (Rel. 09, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatein).  
GN FGF2 OR FGF2.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RX MEDLINE=87217066; PubMed=3780670;  
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,  
RA Gospodarowicz D., Fiddes J.C.;  
RT "Human basic fibroblast growth factor: nucleotide sequence and genomic organization.";  
RT EMBO J. 5:2523-2528(1986).  
RN [2]  
RX MEDLINE=87217066; PubMed=3472745;  
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";  
RT Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
RN [3]  
RX MEDLINE=87213238; PubMed=3579930;  
RA Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M.,  
RA Rifkin D.B.;  
RT "A form of human basic fibroblast growth factor with an extended amino terminus.";  
RT Biochem. Biophys. Res. Commun. 144:543-550(1987).  
RN [4]  
RX MEDLINE=87162468; PubMed=2435575;  
RA Kurokawa T., Sasada R., Iwano M., Igarashi K.;  
RT "Cloning and expression of cDNA encoding human basic fibroblast growth factor.";  
RT FEBS Lett. 213:189-194(1987).  
RN [5]  
RX MEDLINE=89184522; PubMed=2539817;  
RA Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,  
RA Llaunz P., Chalon P., Tauber J.P., Amelric F., Smith J.A.;  
RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";  
RT Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RN [6]  
RX MEDLINE=86275260; PubMed=3732516;

RA Gautschi P., Frater-Schroeder M., Boehlen P.;  
RT "Partial molecular characterization of endothelial cell mitogens from  
RT human brain: acidic and basic fibroblast growth factors.";  
RL FEBS Lett. 204:203-207(1986).  
RN [17]  
RP SEQUENCE OF 10-39.  
RX MEDLINE-86186784; PubMed-3964259;  
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
RT "Human brain-derived acidic and basic fibroblast growth factors:  
RT amino terminal sequences and specific mitogenic activities.";  
RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
RN [8]  
RP SEQUENCE OF 2-22.  
RX MEDLINE-87156686; PubMed-2435284;  
RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;  
RT "Amino-terminal sequence of a large form of basic fibroblast growth  
RT factor isolated from human benign prostatic hyperplastic tissue.";  
RL Biochem. Biophys. Res. Commun. 142:702-709(1987).  
RN [9]  
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).  
RX MEDLINE-91195367; PubMed-1707542;  
RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;  
RT "Three-dimensional structure of human basic fibroblast growth  
RT factor.";  
RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).  
RN [10]  
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
RX MEDLINE-94004464; PubMed-7691311;  
RA Eriksson A.E., Cousens L.S., Matthews B.W.;  
RT "Refinement of the structure of human basic fibroblast growth factor  
RT at 1.6-A resolution and analysis of presumed heparin binding sites by  
RT selenate substitution.";  
RL Protein Sci. 2:1274-1284(1993).  
RN [11]  
RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).  
RX MEDLINE-91195368; PubMed-1849658;  
RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;  
RT "Three-dimensional structure of human basic fibroblast growth factor,  
RT a structural homolog of interleukin 1 beta.";  
RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).  
RN [12]  
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
RX MEDLINE-92121151; PubMed-1769963;  
RA Ago H., Kitagawa Y., Fujishima A., Matsura Y., Katsube Y.;  
RT "Crystal structure of basic fibroblast growth factor at 1.6-A  
RT resolution.";  
RL J. Biochem. 110:360-363(1991).  
RN [13]  
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
RX MEDLINE-91095983; PubMed-1702556;  
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.;  
RT "Three-dimensional structures of acidic and basic fibroblast growth  
RT factors.";  
RL Science 251:90-93(1991).  
RN [14]  
RP STRUCTURE BY NMR.  
RX MEDLINE-97040521; PubMed-8885834;  
RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;  
RT "High-resolution solution structure of basic fibroblast growth factor  
RT determined by multidimensional heteronuclear magnetic resonance  
RT spectroscopy.";  
RL Biochemistry 35:13552-13561(1996).  
RN [15]  
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
CC -1- SUBUNIT: MONOMER.  
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
CC AFGF.  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC -----  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -  
CC the European Bioinformatics Institute. There are no restrictions on its  
CC use by non-profit institutions as long as its content is in no way  
CC modified and this statement is not removed. Usage by and for commercial  
CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
CC or send an email to [license@sib-sib.ch](mailto:license@sib-sib.ch)).  
CC -----  
DR EMBL; M17599; AA52534.1; ALT\_INIT.  
DR EMBL; X04431; CA28027.1; -  
DR EMBL; X04432; CA28028.1; -  
DR EMBL; X04433; CA28029.1; -  
DR EMBL; M27968; AA52448.1; -  
DR EMBL; J04513; AA52533.1; ALT\_INIT.  
DR PIR; A25824; A25824.  
DR PIR; A26642; A26642.  
DR PIR; B24243; B24243.  
DR PIR; B24301; B24301.  
DR PIR; B32878; B32878.  
DR PIR; S00297; S00297.  
DR PDB; 2FGF; 15-APR-92.  
DR PDB; 4FGF; 15-JUL-93.  
DR PDB; 1FGA; 15-JUL-93.  
DR PDB; 1BFB; 03-APR-96.  
DR PDB; 1BFC; 03-APR-96.  
DR PDB; 1BFG; 16-JUN-97.  
DR PDB; 1BFG; 31-JAN-94.  
DR PDB; 2BFG; 30-APR-94.  
DR PDB; 1BLA; 08-NOV-96.  
DR PDB; 1BID; 08-NOV-96.  
DR Genew; HGNC:3676; FGF2.  
DR MIM; 134920; -  
DR InterPro; IPR002209; HB/F-growthfact.  
DR InterPro; IPR002348; ILL\_HBGF.  
DR Pfam; PF00167; FGF; 1  
DR PRINTS; PR00262; ILLHBGF.  
DR PRODOM; PD000831; HB/F-growthfact; 1.  
DR SMART; SM00442; FGF; 1.  
DR PROSITE; PS00247; HBGF\_FGF; 1.  
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
KW 3d-structure.  
FT PROPEP 1 9  
FT CHAIN 10 155  
FT SITE 46 48  
FT SITE 88 90  
FT BINDING 27 31  
FT BINDING 116 119  
FT STRAND 30 34  
FT TURN 35 38  
FT STRAND 39 43  
FT TURN 45 46  
FT STRAND 49 52  
FT TURN 55 56  
FT TURN 58 60  
FT HELIX 62 66  
FT TURN 69 70  
FT STRAND 71 76  
FT TURN 77 80  
FT STRAND 81 85  
FT TURN 87 88  
FT STRAND 91 94  
FT HELIX 99 101  
FT STRAND 103 107  
FT TURN 109 110  
FT STRAND 113 117  
FT TURN 121 122  
FT STRAND 124 124  
FT TURN 127 127  
FT STRAND 129 130  
FT TURN 132 133  
FT STRAND 136 138  
FT ELIX 141 142  
FT TURN 144 146  
FT STRAND 148 152  
HEPARIN-BINDING GROWTH FACTOR 2.  
CELL ATTACHMENT SITE (POTENTIAL).  
HEPARIN ATTACHMENT SITE (POTENTIAL).  
HEPARIN (POTENTIAL).  
HEPARIN (POTENTIAL).

Query Match 100.0%; Score 785; DB 1; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 6,76-76;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGGGAPPPGPHFHPKRLCYCKNGGFFLRHPDGVADVREKSDPHIKLOLAER 60  
 |||  
 DB 10 PALPDDGGGAPPPGPHFHPKRLCYCKNGGFFLRHPDGVADVREKSDPHIKLOLAER 69  
 |||  
 OY 61 GVSISIKGVANRYLAKMEDGRLLASCVTDECFEERLESNNYTRSRKRYTSWYVALKR 120  
 |||  
 DB 70 GVSISIKGVANRYLAKMEDGRLLASCVTDECFEERLESNNYTRSRKRYTSWYVALKR 129  
 |||  
 OY 121 TGOYKIGSKTGPQKAILFLPMSAKS 146  
 |||  
 DB 130 TGOYKIGSKTGPQKAILFLPMSAKS 155  
 |||

RESULT 2  
 FGF2\_BOVIN STANDARD; PRT; 155 AA.  
 ID FGF2\_BOVIN  
 AC P03969;  
 DT 23-OCT-1986 (Rel. 02, Last sequence update)  
 DT 23-OCT-1986 (Rel. 02, Last sequence update)  
 DT 15-UN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast  
 DE growth factor) (BFGF) (Prostatropin) [Contains: Kidney-derived growth  
 DE factor].  
 GN FGF2 OR FGF-2.  
 OS Bos taurus (Bovine).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Bovinae; Bos.  
 OX NCBI\_TaxID=9913;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-86261806; PubMed-2425435;  
 RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,  
 RA Hjerlild K.A., Gospodarowicz D., Fiddes J.C.;  
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic  
 RT protein, basic fibroblast growth factor.";  
 RL Science 233:345-348(1986).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE-87217066; PubMed-3472745;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic  
 RT organization, and expression in mammalian cells.";  
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
 RN [3]  
 RP SEQUENCE OF 10-155.  
 RX MEDLINE-86016731; PubMed-3863109;  
 RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R.,  
 RA Gospodarowicz D., Boehlen P., Guillemin R.;  
 RT "Primary structure of bovine pituitary basic fibroblast growth factor  
 RT (FGF) and comparison with the amino-terminal sequence of bovine brain  
 RT acidic FGF.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).  
 RN [4]  
 RP SEQUENCE OF 1-9.  
 RX MEDLINE-86295737; PubMed-3741423;  
 RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;  
 RT "Isolation of an amino terminal extended form of basic fibroblast  
 RT growth factor.";  
 RL Biochem. Biophys. Res. Commun. 138:580-588(1986).  
 RN [5]  
 RP SEQUENCE OF 25-41.  
 RC TISSUE-Kidney;  
 RX MEDLINE-86095426; PubMed-4081126;  
 RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;  
 RT "Isolation and partial characterization of an endothelial cell growth  
 RT factor from the bovine kidney: homology with basic fibroblast growth  
 RT factor.";

RL Regul. Pept. 12:201-213(1985).  
 RN [6]  
 RP SEQUENCE OF 21-40.  
 RC TISSUE-Kidney;  
 RX MEDLINE-87119165; PubMed-3809608;  
 RA Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Guillemin R.;  
 RT "Purification and partial characterization of a mitogenic factor from  
 RT bovine liver: structural homology with basic fibroblast growth  
 RT factor.";  
 RL Regul. Pept. 16:135-145(1986).  
 RN [7]  
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RX MEDLINE-91095983; PubMed-1702556;  
 RA Zhu X., Komiya H., Chirino A., Fanam S., Fox G.M., Arakawa T.,  
 RA Hsu B.T., Rees D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth  
 RT factors.";  
 RL Science 251:90-93(1991).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@sib-sib.ch](mailto:license@sib-sib.ch)).  
 CC -----  
 DR EMBL: M13440; AAA30518.1; -.  
 DR PIR: A24663; GKB0B.  
 DR PIR: A24819; A24819.  
 DR PIR: A32878; A32878.  
 DR PDB: 1BAS; 31-OCT-93.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF\_1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR PRODOM: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF\_1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 KW 3D-structure.  
 FT PROPEP 1 9  
 FT CHAIN 10 155  
 FT CHAIN 25 155  
 FT SITE 46 48  
 FT SITE 88 90  
 FT BINDING 27 31  
 FT BINDING 116 119  
 FT STRAND 30 34  
 FT STRAND 35 38  
 FT STRAND 39 43  
 FT STRAND 45 46  
 FT STRAND 49 52  
 FT STRAND 55 56  
 FT STRAND 58 60  
 FT HELIX 62 68  
 FT STRAND 69 70  
 FT STRAND 71 76  
 FT TURN 77 80  
 FT TURN 81 85  
 FT STRAND 87 88  
 FT STRAND 91 94  
 FT STRAND 95 101  
 FT HELIX 103 107  
 FT STRAND 109 110  
 FT TURN 110

HEPARIN-BINDING GROWTH FACTOR 2.  
 KIDNEY-DERIVED GROWTH FACTOR.  
 CELL ATTACHMENT SITE (POTENTIAL).  
 CELL ATTACHMENT SITE (POTENTIAL).  
 HEPARIN (POTENTIAL).  
 HEPARIN (POTENTIAL).

```

      FT STRAND      113      117
      TT TURN        121      122
      TT STRAND      124      124
      TT STRAND      127      127
      TT TURN        129      130
      TT STRAND      133      133
      TT HELIX       136      138
      TT TURN        141      142
      TT HELIX       144      146
      TT STRAND      148      151
      SO SEQUENCE    155 AA; 17250 MW; B6CE70FA6107129 CRC64;

Query Match      98.9%; Score 776; DB 1; Length 155;
Best Local Similarity 98.6%; Pred. No. 6e-75;
Matches 144; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 1 PALPDDGSSGAFPPGHFDPKRLCYCKNGFFLRIHPDGRVGVREKSPHIKLOLAER 60
DB 10 PALPDDGSSGAFPPGHFDPKRLCYCKNGFFLRIHPDGRVGVREKSPHIKLOLAER 69
OY 61 GVSIKGYCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 70 GVSIKGYCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129
OY 121 TGQYKLGSKTGPGRKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPGRKAILFLPMSAKS 155

RESULT 3
FGF2_SHEEP
ID FGF2_SHEEP STANDARD: PRT; 155 AA.
AC P20003;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast
DE growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
RA submitted (SEP-1994) to the EMBL/Genbank/DBJ databases.
RN [2]
RX MEDLINE=86055577; PubMed=3678486;
RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
RA Rudira M.R., Burgess A.W.;
RT "Primary structure of ovine pituitary basic fibroblast growth
RT factor.";
RL FEBS Lett 224:128-132(1987).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AREG.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----

```

```

DR EMBL: L36136; AAA31519.1; -.
DR PIR: S00185; S00185.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HB/F-growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HB/F-growthfact; 1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 45 48 HEPARIN-BINDING GROWTH FACTOR 2.
FT SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
SO SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match      98.1%; Score 770; DB 1; Length 155;
Best Local Similarity 97.9%; Pred. No. 2.6e-74;
Matches 143; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

OY 1 PALPDDGSSGAFPPGHFDPKRLCYCKNGFFLRIHPDGRVGVREKSPHIKLOLAER 60
DB 10 PALPDDGSSGAFPPGHFDPKRLCYCKNGFFLRIHPDGRVGVREKSPHIKLOLAER 69
OY 61 GVSIKGYCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 70 GVSIKGYCANRYLAKMEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 129
OY 121 TGQYKLGSKTGPGRKAILFLPMSAKS 146
DB 130 TGQYKLGSKTGPGRKAILFLPMSAKS 155

RESULT 4
FGF2_RAT
ID FGF2_RAT STANDARD: PRT; 154 AA.
AC P13109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast
DE growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RA STRAIN=Sprague-Dawley; TISSUE=Ovary;
RX MEDLINE=86061721; PubMed=3196337;
RA Shimazaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT "Complementary DNA cloning and sequencing of rat ovarian basic
RT fibroblast growth factor and tissue distribution study of its mRNA.";
RL Blochem. Biophys. Res. Commun. 157:256-263(1988).
RN [2]
RX SEQUENCE FROM N.A.
RP TISSUE=Brain;
RX MEDLINE=88262516; PubMed=3387229;
RA Kurokawa T., Seno M., Igarashi K.;
RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:5201-5201(1988).
RN [3]
RP SEQUENCE OF 1-28 FROM N.A.
RX TRAIN=Sprague-Dawley; TISSUE=Testis;
RX SDLINE=97200905; PubMed=9048734;
RA Isumarhi K.B.S., Jin Y., Cattini P.A.;
RT Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";

```

```

RL J. Neurochem. 68:898-908(1997).
RN [4]
RP SEQUENCE OF 35-154 FROM N.A.
RC STRAIN-Sprague-Dawley; TISSUE-Brain;
RX MEDLINE=92329546; PubMed=1378302;
RA El-Husseini A.E.-D., Paterson J.A., Myal Y., Shiu R.P.C.;
RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF)
RT mRNA containing a unique 3' untranslated region."
RL Blochim. Biophys. Acta 1131:314-316(1992).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M22427; AAA41210.1; -
DR EMBL: X07285; CA50265.1; -
DR EMBL: U78079; AAC53225.1; -
DR EMBL: X61697; CAA43863.1; -
DR PIR: S00876; S00876.
DR PIR: A31674; A31674.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HB/F-growthfact.
DR InterPro: IPR002348; IIL_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IILHBGF.
DR PRODOM: PD000831; HB/F-growthfact; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KM PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA: 17139 MW: 1A0F1AF423BD403 CRC64;

Query Match 97.0%; Score 761.5; DB 1; Length 154;
Best Local Similarity 97.3%; Pred. No. 2e-73;
Matches 142; Conservative 3; Mismatches 0; Indels 1; Gaps 1;

OY 1 PALPDEGSGAPPGHFKPKRILYCKNGFFLRHPDGVDRVREKSDPHIKLODAEER 60
DB 10 PALPDEGG-GAPPGHFKPKRILYCKNGFFLRHPDGVDRVREKSDPHIKLODAEER 68
OY 61 GVAISTGVCCANRYLAKMEDGRLASKCVYDECFEERLESNNYNTYRSKRYSWYALR 120
DB 69 GVAISTGVCCANRYLAKMEDGRLASKCVYDECFEERLESNNYNTYRSKRYSWYALR 128
OY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146
DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 5
FEF2_MOUSE STANDARD: PRT; 154 AA.
ID FGF2_MOUSE
AC P15655;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast

```

```

DE growth factor) (bFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90201563; PubMed=2218343;
RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis."
RL Dev. Biol. 138:454-463(1990).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J, A/J, and NOD/LtJ; TISSUE=spleen;
RA Ma R.Z., Teuscher C.;
RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (see http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M30644; AAA37621.1; -
DR EMBL: AF065903; AAC17503.1; -
DR EMBL: AF065904; AAC17504.1; -
DR EMBL: AF065905; AAC17505.1; -
DR PIR: C37360; C37360.
DR HSSP: P09038; 1BFF.
DR MGD: MGI:95516; Fgf2.
DR InterPro: IPR002209; HB/F-growthfact.
DR InterPro: IPR002348; IIL_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IILHBGF.
DR PRODOM: PD000831; HB/F-growthfact; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KM PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA: 17153 MW: 689F677416274388 CRC64;

Query Match 96.4%; Score 756.5; DB 1; Length 154;
Best Local Similarity 96.6%; Pred. No. 6.8e-73;
Matches 141; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

OY 1 PALPDEGSGAPPGHFKPKRILYCKNGFFLRHPDGVDRVREKSDPHIKLODAEER 60
DB 10 PALPDEGGA-APPGHFKPKRILYCKNGFFLRHPDGVDRVREKSDPHIKLODAEER 68
OY 61 GVAISTGVCCANRYLAKMEDGRLASKCVYDECFEERLESNNYNTYRSKRYSWYALR 120
DB 69 GVAISTGVCCANRYLAKMEDGRLASKCVYDECFEERLESNNYNTYRSKRYSWYALR 128
OY 121 TGOYKLGSKTGPQKAILFLPMSAKS 146
DB 129 TGOYKLGSKTGPQKAILFLPMSAKS 154

```

```
RESULT 6
ID_FGF2_RABIT STANDARD; PRT; 137 AA.
AC P48799;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth
factor) (BFGF) (Prostatropin) (Fragment).
GN FGF2
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
ON NCBI_TaxID=9986;
RN [1]
RP SEQUENCE FROM N.A.
RX STRAIN=New Zealand white; TISSUE=Smooth muscle;
MEDLINE=93343209; Pubmed=8342599;
RA Winkles J.A., Friesel R., Alberts G.F., Janet M.F., Lian G.;
RT "Elevated expression of basic fibroblast growth factor in an
RT immortalized rabbit smooth muscle cell line."
RL Am. J. Pathol. 143:518-527(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC
DR EMBL: L12034; AAA31248.1; -.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HB/F_growthfact.
DR Pfam: PF00167; FGF_1.
DR PRODOM: PD000831; HB/F_growthfact; 1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT BINDING 18 22
FT BINDING 107 110 HEPARIN (POTENTIAL).
FT NON_TER 137 137
SQ SEQUENCE 137 AA; 15418 MW; 0D9E457B88E8C51 CRC64;
Query Match 94.08; Score 738; DB 1; Length 137;
Best Local Similarity 99.38; Pred. No. 5.3e-71;
Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
OY 1 PALPDDGGGSAFPFGHFDPRKLYCKNGGFLRIHPDGRVGVREKSPDHKILQDAER 60
DB 1 PALPDDGGGSAFPFGHFDPRKLYCKNGGFLRIHPDGRVGVREKSPDHKILQDAER 60
OY 61 GVSISIKGVANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 61 GVSISIKGVANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
OY 121 TGQYKLGSKTGPQKAI 137
DB 121 TGQYKLGSKTGPQKAI 137
RESULT 7
ID_FGF2_CHICK STANDARD; PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
```

```
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
ON NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=93246053; Pubmed=7683281;
RA Boria A.Z., Zeller R., Meijers C.;
RT "Expression of alternatively spliced bfgf first coding exons and
RT antisense mRNAs during chicken embryogenesis."
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC
DR EMBL: M95707; AAA48617.1; -.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HB/F_growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HB/F_growthfact; 1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 12
FT BINDING 13 158 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 30 34 HEPARIN (POTENTIAL).
FT BINDING 119 122 HEPARIN (POTENTIAL).
SQ SEQUENCE 158 AA; 17374 MW; 7B69B684C17F1816 CRC64;
Query Match 92.18; Score 723; DB 1; Length 158;
Best Local Similarity 91.88; Pred. No. 2.4e-69;
Matches 134; Conservative 5; Mismatches 7; Indels 0; Gaps 0;
OY 1 PALPDDGGGSAFPFGHFDPRKLYCKNGGFLRIHPDGRVGVREKSPDHKILQDAER 60
DB 13 PALPDDGGGSAFPFGHFDPRKLYCKNGGFLRIHPDGRVGVREKSPDHKILQDAER 72
OY 61 GVSISIKGVANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKR 120
DB 73 GVSISIKGVANRYLAMKEDGRLALKCATEDECFEERLESNNYNTYRSRKYSDWYVALKR 132
OY 121 TGQYKLGSKTGPQKAI 146
DB 121 TGQYKLGSKTGPQKAI 146
OY 133 TGQYKLGSKTGPQKAI 158
DB 133 TGQYKLGSKTGPQKAI 158
RESULT 8
ID_FGF2_MONDO STANDARD; PRT; 156 AA.
AC P48796;
DT 01-FEB-1996 (Rel. 33, Created)
```







AC P34004; (Rel. 28, Created)  
 DT 01-FEB-1994 (Rel. 28, Last sequence update)  
 DT 01-FEB-1994 (Rel. 28, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF).  
 GN HBGF1 OR FGF-1.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;  
 OC Mesocricetus.  
 NC NCBL\_TaxID=10036;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=90270291; PubMed=1693366;  
 RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;  
 RT "Characterization of the hamster DDT-1 cell AFGF/HBGF-I gene and CDNA and its modulation by steroids";  
 RL J. Cell. Biochem. 43:17-26(1990).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 DR PIR; A60721; A60721.  
 DR HSSP; P05230; IRL.  
 DR InterPro: IPR002209; HB/F.growthfact.  
 DR InterPro: IPR002348; ILL\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; ILLHBGF.  
 DR SMART; SM00442; FGF\_1.  
 DR PRODOM; PD000831; HB/F.growthfact; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF.FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 KM PROPEP 1 15  
 FT CHAIN 16 155  
 FT BINDING 24 28  
 FT BINDING 113 116  
 FT SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;  
 SO QUERY MATCH 50.4%; Score 396; DB 1; Length 155;  
 Best Local Similarity 56.6%; Pred. No. 8.3e-35;  
 Matches 77; Conservative 16; Mismatches 41; Indels 2; Gaps 1;  
 QY 13 PGHFHDKRLKCKNGGFLRHPDGRVYDREKSDPHIKLOAEERGVYSIKGVCANR 72  
 DB 19 PPGNYKPKKLYXCNGHFLRILPDGYDGRSDQIHQLOLAEHSGEYIKGTETGQ 78  
 QY 73 YLANKEGRLIASKCVTDECFEERLESNNYTSRKYT--SWYVALKRTGYKLGSKT 130  
 DB 79 YLANDTGDLTGSQTPNECLFRLERENHYNTSKKHAKNMFVGLKKNKSGCRGPR 138  
 QY 131 GPGOKATILFPMASAKS 146  
 DB 139 HYGOKATILFPLPVSS 154  
 RESULT 11  
 FCFL\_HUMAN STANDARD; PRT; 155 AA.  
 DT 13-AUG-1987 (Rel. 05, Created)  
 DT 13-AUG-1987 (Rel. 05, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Beta-endothelial cell growth factor) (ECGF-beta).  
 GN FGF1 OR FGFA.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OX NCBL\_TaxID=9605;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=86261805; PubMed=3523756;  
 RA Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,  
 RA O'Brien S.J., Modl W.S., MacIag T., Drohan W.N.;  
 RT "Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization."; Science 233:541-545(1986).  
 RL [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain stem;  
 RX MEDLINE=89343957; PubMed=2474753;  
 RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  
 RT "Cloning of the gene coding for human class I heparin-binding growth factor and its expression in fetal tissues."; Mol. Cell. Biol. 9:2387-2395(1989).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=Brain stem;  
 RX MEDLINE=90265618; PubMed=1693186;  
 RA Chiu I.M., Wang W.P., Lehtoma K.;  
 RT "Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor 1."; Oncogene 5:755-762(1990).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=90073637; PubMed=2590193;  
 RA Mergia A., Tischer E., Graves D., Tumolo A., Miller J.,  
 RA Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;  
 RT "Structural analysis of the gene for human acidic fibroblast growth factor"; Biochem. Biophys. Res. Commun. 164:1121-1129(1989).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=92019819; PubMed=1717925;  
 RA Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.;  
 RT "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients."; Oncogene 6:1521-1529(1991).  
 RN [6]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=92202857; PubMed=1372643;  
 RA Li Y.L., Kha H., Golden J.A., Mischelisen A.A.J., Goetzl E.J.,  
 RA Turk E.J.;  
 RT "An acidic fibroblast growth factor protein generated by alternate RT splicing acts like an antagonist."; J. Exp. Med. 175:1073-1080(1992).  
 RN [7]  
 RP SEQUENCE OF 1-154 FROM N.A.  
 RX MEDLINE=94069734; PubMed=7504343;  
 RA Zhao X.M., Yeoh T.K., Hiebert M., First W.H., Miller G.G.;  
 RT "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T cells."; Transplantation 56:1177-1182(1993).  
 RN [8]  
 RP SEQUENCE OF 1-40 FROM N.A.  
 RX MEDLINE=90365758; PubMed=2393407;  
 RA Crumley G., Dionne C.A., Jaye M.;  
 RT "The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon."; Biochem. Biophys. Res. Commun. 171:7-13(1990).  
 RN [9]  
 RP SEQUENCE OF 16-155.  
 RX MEDLINE=86296647; PubMed=2427112;  
 RA Harper J.W., Strysdom D.J., Lobb R.R.;  
 RT "Human class I heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor."; J. Biochemistry 25:4097-4103(1986).  
 RN [10]  
 RP SEQUENCE OF 16-155.

RX MEDLINE-86295741; PubMed-3527167;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "The complete amino acid sequence of human brain-derived acidic  
 fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 138:611-617(1986).  
 RN [11]  
 RP SEQUENCE OF 16-155.  
 RX MEDLINE-87048871; PubMed-3778488;  
 RA Gautschi-Sova P., Mueller T., Boehlen P.;  
 RT "Amino acid sequence of human acidic fibroblast growth factor.";  
 RL Blochq. Biophys. Res. Commun. 140:874-880(1986).  
 RN [12]  
 RP SEQUENCE OF 16-47.  
 RX MEDLINE-86186784; PubMed-3964259;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors:  
 amino terminal sequences and specific mitogenic activities.";  
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 RN [13]  
 RP SEQUENCE OF 16-49.  
 RX MEDLINE-86275260; PubMed-3732516;  
 RA Gautschi P., Frater-Schroeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from  
 human brain: acidic and basic fibroblast growth factors.";  
 RL FEBS Lett. 204:203-207(1986).  
 RN [14]  
 RP X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).  
 RX MEDLINE-96194129; PubMed-8652550;  
 RA Blader M., Disalvo J., Thomas K.A.;  
 RT "X-ray crystal structure of human acidic fibroblast growth factor.";  
 RL Biochemistry 35:2086-2094(1996).  
 RN [15]  
 RP STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE-94358885; PubMed-7521397;  
 RA Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J.,  
 RA Gimenez-Gallego G.;  
 RT "1H-NMR assignment and solution structure of human acidic fibroblast  
 growth factor activated by inositol hexasulfate.";  
 RL J. Mol. Biol. 242:81-98(1994).  
 RN [16]  
 RP STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE-97107335; PubMed-8950275;  
 RA Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J.,  
 RA Rico M., Gimenez-Gallego G.;  
 RT "Three-dimensional structure of acidic fibroblast growth factor in  
 solution: effects of binding to a heparin functional analog.";  
 RL J. Mol. Biol. 264:162-178(1996).  
 RN [17]  
 RP STRUCTURE BY NMR OF 25-155.  
 RX MEDLINE-98387896; PubMed-9719643;  
 RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;  
 RT "Solution structure of acidic fibroblast growth factor bound to 1,3,  
 6-naphthalenesulfonate: a minimal model for the anti-tumoral  
 action of suramin and suradistas.";  
 RL J. Mol. Biol. 281:899-915(1998).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC EMBL, M13361; AAA79245.1; -

DR EMBL: X51943; CAA36206.1; -  
 DR EMBL: M30492; AAA52446.1; -  
 DR EMBL: M30490; AAA52446.1; JOINED.  
 DR EMBL: M30491; AAA52446.1; JOINED.  
 DR EMBL: M60515; AAA51672.1; -  
 DR EMBL: M60516; AAA51673.1; -  
 DR EMBL: M23087; AAA52638.1; -  
 DR EMBL: M23086; AAA52638.1; JOINED.  
 DR EMBL: S67291; AAB29057.2; -  
 DR EMBL: X65778; CAA46661.1; -  
 DR PIR: A23553; A23553.  
 DR PIR: A24243; A24243.  
 DR PIR: A24301; A24301.  
 DR PIR: A24662; A24662.  
 DR PIR: A24820; A24820.  
 DR PIR: A26386; A26386.  
 DR PIR: A33665; A33665.  
 DR PIR: S18217; S18217.  
 DR PDB: 2AFG; 15-OCT-95.  
 DR PDB: 1AXM; 22-APR-98.  
 DR PDB: 2AXM; 22-APR-98.  
 DR PDB: 1RML; 11-NOV-98.  
 DR Genev: HGNC:3665; FGF1.  
 DR MIM: 131220; -  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; ILL\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; ILLHBGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;  
 KW 3D-structure.  
 FT PROPEP 1 15  
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.  
 FT MOD\_RES 2 2 ACETYLATION  
 FT BINDING 24 28 HEPARIN (POTENTIAL).  
 FT BINDING 113 116 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 155 AA; 17460 MW; F586EB8FB09F1580 CRC64;  
 Query Match 49.2%; Score 386; DB 1; Length 155;  
 Best Local Similarity 55.9%; Pred. No. 9,4e-34;  
 Matches 76; Conservative 16; Mismatches 42; Indels 2; Gaps 1;  
 QY 13 PGCFKPKRYCKNGCFELRHDPGRVGVREKSPHIKIQIAERGVYSIKVCANR 72  
 DB 19 PRCNTYKPKLLYCSNGHFLRLIPDCTVGTDRSDQHQLQLSASVGEVYIKSRSTGQ 78  
 QY 73 YLAKEDGRLLASCVTDECFEERLESNNYNTYRSRKYT--SWYVALKRTGQYKIGSXT 130  
 DB 79 YLAMPDGLLYGSQTPNECLFLERLENNYNTYISKHAKEMWFGGLKNGSCKKGPRT 138  
 QY 131 GPQKAILFLPMASKS 146  
 DB 139 HYQKAILFLPVS 154  
 RESULT 12  
 FGF1\_CHICK  
 ID FGF1\_CHICK STANDARD; PRT; 155 AA.  
 AC P19596;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast  
 DE growth factor) (AFGF) (Alpha-endothelial cell growth factor).  
 GN FGF1 OR FGF-1.  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 ON NCBI\_TaxID=9031;  
 RX [1]

RP SEQUENCE FROM N.A.  
 RX MEDLINE-91347925; PubMed-1715259;  
 RA Schumacher H., Risau W.;  
 RT "Differentiating and mature neurons express the acidic fibroblast  
 RT growth factor gene during chick neural development";  
 RL Development 111:1143-1154(1991).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RA Martin G.R., Han J.K.;  
 RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.  
 RN [3]  
 RX MEDLINE-88296438; PubMed-2402441;  
 RA Risau W., Gausecht-Sova P., Boehlen P.;  
 RT "Endothelial cell growth factors in embryonic and adult chick brain  
 RT are related to human acidic fibroblast growth factor";  
 RL EMBO J. 7:959-962(1988).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL: S63263; AAB19629.1; -;  
 DR EMBL: U31863; AAA80310.1; -;  
 DR EMBL: S63261; AAD13942.1; -;  
 DR PIR: S02639; S02639;  
 DR HSSP: P05230; 2AXM.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF.1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR PRODOM: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF.1.  
 DR PROSITE: PS00247; HBGF\_FGF.1.  
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 15  
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.  
 FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.  
 FT BINDING 24 28 HEPARIN (POTENTIAL).  
 FT BINDING 113 116 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 155 AA; 17322 MW; 8BD870545E2B4365 CRC64;  
 Query Match 48.9%; Score 383.5; DB 1; Length 155;  
 Best Local Similarity 54.5%; Pred. No. 1,7e-33;  
 Matches 78; Conservative 20; Mismatches 40; Indels 5; Gaps 2;  
 QY 2 ALPEGGSGAPPPGPHFDPKRLCYKNGGFFLRHPDGVVDGVREKSDHITLQIAERG 61  
 DB 11 ALTEPFG---LPLGNYKRPKLLCYSGNGSHFLRLPDGVVDGTRDSDDHIDLOLSAEVVG 67  
 QY 62 VVSIKGVCANRYLAKMEKGRLLASKCVDECFEERLESNNYNTYRSRKY--SNYVALK 119  
 DB 68 EVYIKSTASGGYLLMDNTGLLYSGLLPGECLFLERLEENHYNTYISKHAKDNMFVGLK 127  
 QY 120 RTGYKLGSKTGPQKALFLPM 142  
 DB 128 KNGSKLSPRTHYGOKALFLPL 150

ID FGF1\_MOUSE STANDARD; PRT; 155 AA.  
 AC P10935;  
 DT 01-JUL-1989 (Rel. 11, Created)  
 DT 01-JUL-1989 (Rel. 11, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast  
 DE growth factor) (AFGF).  
 GN FGF1 OR FGF-1 OR FGFA.  
 OS Mus musculus (Mouse), and  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OX NCBI\_TaxID:10090, 10116;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES-Rat;  
 RX MEDLINE-89240051; PubMed-2470029;  
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;  
 RT "The nucleotide sequence of rat heparin binding growth factor 1  
 RT (HBGF-1)";  
 RL Nucleic Acids Res. 17:2867-2867(1989).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES-Mouse;  
 RX MEDLINE-90201563; PubMed-2318343;  
 RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;  
 RT "Isolation of cDNAs encoding four mouse Fgf family members and  
 RT characterization of their expression patterns during embryogenesis";  
 RL Dev. Biol. 138:454-463(1990).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES-Mouse;  
 RX MEDLINE-97128312; PubMed-8972905;  
 RA Madala F., Hackshaw K.V., Chiu I.M.;  
 RT "Cloning and characterization of the mouse Fgf-1 gene";  
 RL Gene 179:231-236(1996).  
 RN [4]  
 RP SEQUENCE FROM N.A.  
 RC SPECIES-Mouse; STRAIN-BALB/c;  
 RX MEDLINE-97094746; PubMed-8939980;  
 RA Alam K.Y., Frostholt A., Hackshaw K.V., Evans J.E., Rotter A.,  
 RA Chiu I.M.;  
 RT "Characterization of the 1b promoter of fibroblast growth factor 1  
 RT and its expression in the adult and developing mouse brain";  
 RL J. Biol. Chem. 271:30263-30271(1996).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL Outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL: X14232; CAA32448.1; -;  
 DR EMBL: M30641; AAA37618.1; -;  
 DR EMBL: U36459; AAC52969.1; -;  
 DR EMBL: U36457; AAC52969.1; JOINED.  
 DR EMBL: U36458; AAC52969.1; JOINED.  
 DR EMBL: U67610; AAC52907.1; -;  
 DR "IR: S04147; S04147;  
 DR IR: D37360; D37360.  
 DR SSP: P05230; 1RML.  
 DR JD: MGI:95515; Fgf1.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF.1.



RX MEDLINE-87016918; Pubmed-3533107;  
 RA Burgess W.H., Wehman T., Marshak D.R., Fraser B.A., MacIag T.;  
 RT "Structural evidence that endothelial cell growth factor beta is the  
 RT precursor of both endothelial cell growth factor alpha and acidic  
 RT fibroblast growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).  
 RN 14)  
 RN  
 RP SEQUENCE OF 2-155.  
 RX MEDLINE-87026586; Pubmed-3768327;  
 RA Crabb J.W., Arnes L.G., Carr S.A., Johnson C.M., Roberts G.D.,  
 RA Bordoli R.S., McKeehan W.L.;  
 RT "Complete primary structure of prostatroplin, a prostate epithelial  
 RT cell growth factor.";  
 RL Biochemistry 25:4988-4993(1986).  
 RN 15)  
 RN  
 RP SEQUENCE OF 16-155.  
 RX MEDLINE-86070224; Pubmed-4071057;  
 RA Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,  
 RA Disalvo J., Thomas K.;  
 RT "Brain-derived acidic fibroblast growth factor: complete amino acid  
 RT sequence and homologies.";  
 RL Science 230:1385-1388(1985).  
 RN 16)  
 RN  
 RP SEQUENCE OF 16-44, AND COMPOSITION.  
 RX MEDLINE-86055750; Pubmed-4065099.  
 RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;  
 RT "Acidic fibroblast growth factor (FGF) from bovine brain:  
 RT amino-terminal sequence and comparison with basic FGF.";  
 RL EMBO J. 4:1951-1956(1985).  
 RN 17)  
 RN  
 RP SEQUENCE OF 16-56 FROM N.A.  
 RX MEDLINE-86261806; Pubmed-2425435;  
 RA Abraham J.A., Merzila A., Whang J.L., Tumolo A., Friedman J.,  
 RA Herlihd K.A., Gospodarowicz D., Fiddes J.C.;  
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic  
 RT protein, basic fibroblast growth factor.";  
 RL Science 233:545-548(1986).  
 RN 18)  
 RN  
 RP SEQUENCE OF 16-45.  
 RX MEDLINE-89231704; Pubmed-2714282;  
 RA Ounkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,  
 RA Sharma H.S., Schaper W.;  
 RT "Isolation of heparin-binding growth factors from bovine, porcine and  
 RT canine hearts.";  
 RL Eur. J. Biochem. 181:67-73(1989).  
 RN 19)  
 RN  
 RP SEQUENCE OF 1-18 FROM N.A.  
 RA Philippe J.M., Renaud F., Desset S., Laurent M.;  
 RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.  
 RN 110)  
 RN  
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RX MEDLINE-91095983; Pubmed-1702556;  
 RA Zhu X., Komiyu H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
 RA Hsu B.T., Rees D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth  
 RT factors.";  
 RL Science 251:90-93(1991).  
 CC  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC  
 CC -1- SUBUNIT: MONOMER.  
 CC  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BEGF.  
 CC  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

Wed Dec 4 15:10:43 2002

us-09-886-856-4.rsp

Db 79 FLAMPDGLIGSOTPNNECELEERLEENHNTYISKKHAKEKMFVGLKKNRSGKLGPR 138  
OY 131 GPGOKAILELPMSAKS 146  
| | | | | : |  
Db 139 HPGOKAILELPVSS 154

Search completed: December 4, 2002, 11:10:01  
Job time : 9.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 4, 2002, 11:09:18 ; Search time 26.5 Seconds

(without alignments)  
1135.203 Million cell updates/sec

Title: US-09-886-856-4

Perfect score: 785  
Sequence: 1 PALPEDEGSGAFPPGHFKDP.....GSKTGPQKAILFLPMKAKS 146

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_21.\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mmc:\*  
8: sp\_organelle:\*  
9: sp\_phage:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriap:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	785	100.0	196	4 P78443	P78443 homo sapien
2	741	94.4	153	11 Q925A3	Q925A3 mus musculus
3	701	89.3	170	11 Q60487	Q60487 canis familiaris
4	682	86.9	130	6 O77767	O77767 cynops pyrr
5	667	85.0	155	13 Q90Y92	Q90Y92 cynops pyrr
6	590	75.2	155	13 Q8QFR9	Q8QFR9 cynops pyrr
7	585	74.5	111	6 Q9BDX1	Q9BDX1 macaca mulatta
8	567	72.2	125	13 Q98TP8	Q98TP8 cynops pyrr
9	561	71.3	108	6 Q9N1S7	Q9N1S7 capreolus c
10	490	62.4	109	11 Q925A1	Q925A1 mus musculus
11	486	61.9	112	11 Q925A2	Q925A2 mus musculus
12	476	60.6	101	13 P79706	P79706 cynops pyrr
13	468.5	59.7	146	13 Q07659	Q07659 gallus galli
14	457	58.2	87	6 Q8MMP4	Q8MMP4 equus caballus
15	341	43.4	76	6 Q9NOV2	Q9NOV2 ovis aries
16	292	37.2	106	6 Q9N1S8	Q9N1S8 capreolus c

17	287	36.6	114	4 Q16443	Q16443 homo sapien
18	287	36.6	114	4 Q00527	Q00527 homo sapien
19	251	32.0	208	11 Q8R5L5	Q8R5L5 rattus norvegicus
20	249	31.7	196	13 Q9YH31	Q9YH31 notophthalmus
21	245	31.2	124	13 Q90X05	Q90X05 ambystoma m
22	239	30.4	245	11 Q8R5L6	Q8R5L6 rattus norvegicus
23	230	29.3	195	11 Q8R5L6	Q8R5L6 rattus norvegicus
24	229	29.2	206	13 Q9YGD8	Q9YGD8 oncorhynchus
25	224	28.5	111	13 Q90XQ1	Q90XQ1 ambystoma m
26	217.5	27.7	201	13 Q8QGS9	Q8QGS9 ambystoma m
27	215	27.4	208	6 Q95L12	Q95L12 sus scrofa
28	213	27.1	191	13 Q9DPC9	Q9DPC9 brachydanio
29	208	26.5	208	13 Q9PY11	Q9PY11 xenopus laevis
30	208	26.5	212	11 Q9ESL9	Q9ESL9 mus musculus
31	205.5	26.2	207	11 Q9ESL8	Q9ESL8 mus musculus
32	205.5	26.2	207	11 Q9ER05	Q9ER05 mus musculus
33	204	26.0	212	11 Q9ESR9	Q9ESR9 rattus norvegicus
34	203	25.9	208	6 Q9SK97	Q9SK97 macaca fascicularis
35	202.5	25.8	212	13 Q42407	Q42407 gallus gallus
36	200.5	25.5	301	5 Q8T8A3	Q8T8A3 clona savig
37	195.5	24.9	134	13 Q90XQ3	Q90XQ3 ambystoma m
38	193.5	24.6	213	6 Q9N1B9	Q9N1B9 ovis aries
39	193	24.5	208	4 Q96P59	Q96P59 homo sapien
40	192	24.5	162	11 Q8V179	Q8V179 rattus norvegicus
41	191.5	24.4	186	6 Q95L47	Q95L47 mustela vison
42	191	24.3	62	6 Q8SP12	Q8SP12 equus caballus
43	189.5	24.1	237	13 Q9IAI6	Q9IAI6 gallus gallus
44	189.5	24.1	247	11 Q8R5L7	Q8R5L7 rattus norvegicus
45	189	24.1	112	13 Q90XP9	Q90XP9 ambystoma m

#### ALIGNMENTS

RESULT 1  
P78443  
ID P78443  
AC P78443  
DT 01-MAY-1997 (TREMBLrel. 03, Created)  
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE 21 XDA basic fibroblast growth factor (BFGF).  
GN BFGF.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=89184522; PubMed=2538817;  
RA Prats H., Kagnad M., Prats A.C., Klagsbrun M., Lelias J.M.,  
RA Liauzun P., Chalton P., Tauber J.P., Amalric F., Smith J.A., Caput D.;  
RT "High molecular mass forms of basic fibroblast growth factor are  
RT initiated by alternative CUG codons".  
RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RN [2]  
RP SEQUENCE OF 81-168 FROM N.A.  
RX MEDLINE=93038590; PubMed=1417798;  
RA Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,  
RA Thomas E.J.;  
RT "Reverse transcription with nested polymerase chain reaction shows  
RT expression of basic fibroblast growth factor transcripts in human  
RT granulosa and cumulus cells from in vitro fertilisation patients.";  
RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).  
DR EMBL: J04513; AA52532.1;  
DR EMBL: S47380; AAD13853.1;  
DR HSSP: P09038; 1BF.  
DR InterPro: IPR002209; HB/F-growthfact.  
DR InterPro: IPR002348; IL1\_HBGF.  
DR Pfam: PF00167; FGF; 1.  
DR PRINTS: PR00262; IL1HBGF.  
DR PRODOM: PD000831; HB/F-growthfact; 1.  
DR SMART: SM00442; FGF; 1.

DR PROSITE: PS00247; HBGF\_FGF: 1.  
 SQ SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;  
 Query Match 100.0%; Score 785; DB 4; Length 196;  
 Best Local Similarity 100.0%; Pred. No. 2.9e-77;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 PALPDDGSSGAPPPGHFDPKRLCKNGGFLRIHPDGRVGVNREKSPDHKLQDAER 60  
 DB 51 PALPDDGSSGAPPPGHFDPKRLCKNGGFLRIHPDGRVGVNREKSPDHKLQDAER 110  
 OY 61 GVSATKGVANRYLAKMKEDGRLASKCVTDECFERLESNNYNTYRSKYSWVAALKR 120  
 DB 111 GVSATKGVANRYLAKMKEDGRLASKCVTDECFERLESNNYNTYRSKYSWVAALKR 170  
 OY 121 TGOYKLGSKRTGPGOKAILFLPMSAKS 146  
 DB 171 TGOYKLGSKRTGPGOKAILFLPMSAKS 196

RESULT 2  
 OY25A3 PRELIMINARY; PRT; 153 AA.  
 ID 0925A3  
 AC 0925A3  
 DT 01-DEC-2001 (TRENBLREL. 19, Created)  
 DT 01-DEC-2001 (TRENBLREL. 19, Last sequence update)  
 DT 01-JUN-2002 (TRENBLREL. 21, Last annotation update)  
 DE Fibroblast growth factor 2.  
 GN FGF2.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OX NCBI\_TaxID=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN-FVB/N;  
 RA Dicks R.P., Grier A.E.;  
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
 RT suppressed in mouse embryos.";  
 RL Submitted (FEB-2001) to the EMBL/Genbank/DBJ databases.  
 DR EMBL: AY027551; AAK52308.1;  
 DR InterPro: IPR002309; HB/F-growthfact.  
 DR Pfam: PF00167; FGF\_1;  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 SQ SEQUENCE 153 AA; 17024 MW; AD8163CD8FA2FAAB CRC64;

Query Match 94.4%; Score 741; DB 11; Length 153;  
 Best Local Similarity 95.9%; Pred. No. 1.3e-72;  
 Matches 140; Conservative 4; Mismatches 0; Indels 2; Gaps 2;

OY 1 PALPDDGSSGAPPPGHFDPKRLCKNGGFLRIHPDGRVGVNREKSPDHKLQDAER 60  
 DB 10 PALPDDGGA-APPGHFDPKRLCKNGGFLRIHPDGRVGVNREKSPDHKLQDAER 68  
 OY 61 GVSATKGVANRYLAKMKEDGRLASKCVTDECFERLESNNYNTYRSKYSWVAALKR 120  
 DB 69 GVSATKGVANRYLAKMKEDGRLASKCVTDECFERLESNNYNTYRSKYSWVAALKR 127  
 OY 121 TGOYKLGSKRTGPGOKAILFLPMSAKS 146  
 DB 128 TGOYKLGSKRTGPGOKAILFLPMSAKS 153

RESULT 3  
 OY25A3 PRELIMINARY; PRT; 170 AA.  
 ID 060487  
 AC 060487  
 DT 01-NOV-1996 (TRENBLREL. 01, Created)  
 DT 01-MAY-2000 (TRENBLREL. 13, Last sequence update)  
 DT 01-JUN-2002 (TRENBLREL. 21, Last annotation update)  
 DE Fibroblast growth factor 2 (FGF-2) (Fibroblast growth factor, basic)  
 DE (HBGF) (Heparin-binding growth factor 2) (HBGF-2) (Prostatic growth factor, (Prostatic growth factor) (Fragments).

GN FGF2.  
 OS Cavia porcellus (Guinea pig).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.  
 OX NCBI\_TaxID=10141;  
 RN [1]  
 RP SEQUENCE OF 53-170 FROM N.A.  
 RC TISSUE=PROSTATE;  
 RA Ricciardelli C.;  
 RL Submitted (JAN-1996) to the EMBL/Genbank/DBJ databases.  
 RN [2]  
 RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.  
 RX MEDLINE=9273588; PubMed=2730645;  
 RA Sommer A., Moscattelli D., Rifkin D.B.;  
 RT "An amino-terminally extended and post-translationally modified form  
 RT of a 25kD basic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).  
 RN [3]  
 RP PARTIAL SEQUENCE, AND METHYLATION.  
 RX MEDLINE=9132214; PubMed=1713785;  
 RA Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;  
 RT "Direct evidence for methylation of arginine residues in high  
 RT molecular weight forms of basic fibroblast growth factor.";  
 RL Cell Regul. 2:87-93(1991).  
 RN [4]  
 RP CHARACTERIZATION.  
 RC TISSUE=BRAIN;  
 RX MEDLINE=87289686; PubMed=3475702;  
 RA Moscattelli D., Joseph-Silverstein J., Manojas R., Rifkin D.B.;  
 RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high  
 RT molecular weight form of basic fibroblast growth factor.";  
 RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).  
 CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPIC  
 CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC  
 CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND  
 CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR  
 CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIAL  
 CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS  
 CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO  
 CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST  
 CC ONE HEPARAN SULFATE (BY SIMILARITY).  
 CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOMERS: 18 KDA AND 25 KDA  
 CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION  
 CC INITIATION SITES. BOTH FORMS ARE ACTIVE.  
 CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLY).  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE  
 CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE  
 CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF  
 CC PARTIAL AMINO-ACID SEQUENCING.  
 CC EMBL: L75974; AAA85394.1; ALT\_FRAME.  
 DR HSSP: P09038; 1BLA.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR PRINTS: PRO0262; IL1HBGF.  
 DR ProDom: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF\_1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Vascularization; Heparin-binding;  
 KW Alternative initiation; Methylation; Phosphorylation;  
 KW developmental protein.  
 FT NON\_TER 1  
 FT NON\_CONS 15  
 FT CHAIN <1 170  
 FT CHAIN 22 170  
 FT INT\_MET 22 22  
 FT DOMAIN 11 14  
 FT NON\_CONS 50 51  
 FT SITE 61 63  
 FT YITE 103 105  
 FT BINDING 50 51  
 FT BINDING 105 105

25 KDA BASIC FIBROBLAST GROWTH FACTOR.  
 18 KDA BASIC FIBROBLAST GROWTH FACTOR.  
 FOR 18 KDA FORM.  
 POLY-ALA.  
 CELL ATTACHMENT SITE (POTENTIAL).  
 CELL ATTACHMENT SITE (POTENTIAL).  
 HEPARIN (BY SIMILARITY).  
 HEPARIN (BY SIMILARITY).



FT BINDING 143 159 HEPARIN (BY SIMILARITY).  
 FT MOD.RES 4 4 METHYLATION (MONO- OR DI-).  
 FT MOD.RES 6 6 METHYLATION (MONO- OR DI-).  
 FT MOD.RES 8 8 METHYLATION (MONO- OR DI-).  
 FT MOD.RES 88 88 PHOSPHORYLATION (BY SIMILARITY).  
 FT MOD.RES 136 136 PHOSPHORYLATION (BY SIMILARITY).  
 SQ SEQUENCE 170 AA; 18354 MW; F36BDBC736E5FEBCRC64;

Query Match  
 Best Local Similarity 91.1%; Score 701; DB 11; Length 170;  
 Matches 133; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

OY 1 PALPDDGGGAPPPGHHFKPKRLCKNGGFRLRHPDGRVDGVRKESDPHIKLOLAER 60  
 DB 31 PALPDDGGGAPPPGHHFKPKRLCKNGGFRLRHPDGRVDGVRKESDPHIKLOLAER 84  
 OY 61 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKR 120  
 DB 85 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKR 144  
 OY 121 TGOYKLSKTPGOKAILFLPMSAKS 146  
 DB 145 TGOYKLSKTPGOKAILFLPMSAKS 170

## RESULT 4

077767 PRELIMINARY; PRT; 130 AA.

AC 077767;  
 DT 01-NOV-1998 (TREMblrel. 08, Created)  
 DT 01-NOV-1998 (TREMblrel. 08, Last sequence update)  
 DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (BFGF) (FGF-2) (Heparin-binding growth factor 2) (HBGF-2) (Prostatic growth factor)  
 DE (Fragment).  
 GN BFGF.  
 OS Canis familiaris (Dog).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.  
 NCBI\_TaxID=9615;

RP SEQUENCE FROM N.A.  
 RA TISSUE-ADRENAL GLAND;  
 RC Trochta O.A., Jacobs R.M., Lamarre J.;  
 RT "The role of BFGF in canine Hemangiosarcoma."  
 RT Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.

CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUTROPHILIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTIC FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
 CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

DR EMBL: AF060562; AAC35912.1;  
 DR HSSP: P09038; 1BFF.  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF\_1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR PRODOM: PD000831; HB/F-growthfact; 1.  
 DR SMART: SM00442; FGF\_1-growthfact; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Vascularization; Heparin-binding;  
 KW Phosphorylation; Developmental protein.

FT SITE 21 23 CELL ATTACHMENT SITE (POTENTIAL).  
 FT SITE 63 65 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 10 11 HEPARIN (BY SIMILARITY).  
 FT BINDING 65 65 HEPARIN (BY SIMILARITY).

FT BINDING 103 119 HEPARIN (BY SIMILARITY).  
 FT MOD.RES 48 48 PHOSPHORYLATION (BY SIMILARITY).  
 FT MOD.RES 96 96 PHOSPHORYLATION (BY SIMILARITY).  
 FT NON\_TER 130 130  
 SQ SEQUENCE 130 AA; 14902 MW; 219008768878A8A CRC64;

Query Match  
 Best Local Similarity 97.7%; Score 682; DB 6; Length 130;  
 Matches 127; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

OY 17 FKDPKRLCKNGGFRLRHPDGRVDGVRKESDPHIKLOLAERGVYSIKVCANRYLAM 76  
 DB 1 FKDPKRLCKNGGFRLRHPDGRVDGVRKESDPHIKLOLAERGVYSIKVCANRYLAM 60  
 OY 77 KEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKRGOYKLSKTPGOKA 136  
 DB 61 KEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKRGOYKLSKTPGOKA 120  
 OY 137 ILFLPMSAKS 146  
 DB 121 ILFLPMSAKS 130

## RESULT 5

090Y92 PRELIMINARY; PRT; 155 AA.

AC 090Y92;  
 DT 01-DEC-2001 (TREMblrel. 19, Created)  
 DT 01-DEC-2001 (TREMblrel. 19, Last sequence update)  
 DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)  
 DE Fibroblast growth factor-2.  
 GN FGF-2.  
 OS Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.  
 NCBI\_TaxID=8330;

RP SEQUENCE FROM N.A.  
 RA Susaki K., Nakamura K., Chiba C., Saito T.;  
 RT "Expression of FGF2 during newt retinal development and regeneration."  
 RT Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL: AB064664; BAB63249.1;  
 DR InterPro: IPR002209; HB/F-growthfact.  
 DR Pfam: PF00167; FGF\_1.  
 DR PRODOM: PD000831; HB/F-growthfact; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; UNKNOWN.1.  
 SQ SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;

Query Match  
 Best Local Similarity 85.0%; Score 667; DB 13; Length 155;  
 Matches 125; Conservative 8; Mismatches 13; Indels 0; Gaps 0;

OY 1 PALPDDGGGAPPPGHHFKPKRLCKNGGFRLRHPDGRVDGVRKESDPHIKLOLAER 60  
 DB 10 PALPDDGGGAPPPGHHFKPKRLCKNGGFRLRHPDGRVDGVRKESDPHIKLOLAER 69  
 OY 61 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKR 120  
 DB 70 GVSISIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKR 129  
 OY 121 TGOYKLSKTPGOKAILFLPMSAKS 146  
 DB 130 TGOYKLSKTPGOKAILFLPMSAKS 155

## RESULT 6

080FR9 PRELIMINARY; PRT; 155 AA.

AC 080FR9;  
 DT 01-JUN-2002 (TREMblrel. 21, Created)  
 DT 01-JUN-2002 (TREMblrel. 21, Last sequence update)  
 DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)

DE Basic fibroblast growth factor.  
 GN FGF2.  
 OS Fugu rubripes (Japanese pufferfish) (Takifugu rubripes).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;  
 OC Acanthomorphi; Acanthopterygii; Percormorpha; Tetraodontiformes;  
 OC Tetraodontidae; Takifugu.  
 OX NCBI\_TaxID=31033;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Botcherby M.R.;  
 RT "Comparative vertebrate genomic sequence analysis studies based on  
 RT Fugu rubripes."  
 RL Thesis (2001), University College London, London, United Kingdom.  
 DR EMBL; AJ26040; CAD19830.1;  
 SQ SEQUENCE 155 AA; 17113 MW; AEFEL2BDC78FBBE CRC64;  
 Query Match 75.2%; Score 590; DB 13; Length 155;  
 Best Local Similarity 77.2%; Pred. No. 3.2e-56;  
 Matches 112; Conservative 5; Mismatches 28; Indels 0; Gaps 0;  
 OY 1 PALPDDGGGGAFFPGHFDPRKLYCKNGGFFLRHPDGRVGVREKSDPHIKLOAER 60  
 DB 10 PSTPDDGGGGGPGGPFSGFDPRKLYCKNGGFFLRSDCAVDCRKTDPHIKLOAATSV 69  
 OY 61 GVSATKGCANRYLAKMKEDGRLSKCVTDCFFERLESNNYNTYRSRKYTSWYALKR 120  
 DB 70 GEVYKGCANRYLAKMKEDGRLSKCVTDCFFERLESNNYNTYRSRKYPMVGLTR 129  
 OY 121 TGVYKGSKTGPGOKAILFLPMSAK 145  
 DB 130 TGVYKGSKTGPGOKAILFLPMSAK 154  
 RESULT 7  
 O9BDX1 PRELIMINARY; PRT: 111 AA.  
 AC O9BDX1;  
 DT 01-JUN-2001 (TREMBlrel. 17, Created)  
 DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (Fragment).  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecinae; Macaca.  
 OX NCBI\_TaxID=9544;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Sekhon H.S., Keller J.K., Spindel E.R.;  
 RT "Alterations in Collagen and Elastin Gene Expression in Fetal  
 RT Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A  
 RT Possible Role of alpha1 Nicotinic Acetylcholine Receptor in Persistent  
 RT Pulmonary Hypertension."  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF251270; AAK37962.1;  
 DR HSSP; P09038; 2PFG.  
 DR InterPro; IPR002209; HB/F-growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F-growthfact; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 DR NON\_TER 1  
 FT NON\_TER 1  
 SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;  
 Query Match 74.5%; Score 585; DB 6; Length 111;  
 Best Local Similarity 100.0%; Pred. No. 7.4e-56;  
 Matches 111; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 OY 34 IHPDGRVGVREKSDPHIKLOAERGVVSIKVCANRYLAKMKEDGRLSKCVTDCFC 93

DB 1 IHPDGRVGVREKSDPHIKLOAERGVVSIKVCANRYLAKMKEDGRLSKCVTDCFC 60  
 OY 94 FFERLESNNYNTYRSRKYTSWYALKRTGQYKLSKTGPGOKAILFLPMSA 144  
 DB 61 FFERLESNNYNTYRSRKYTSWYALKRTGQYKLSKTGPGOKAILFLPMSA 111  
 RESULT 8  
 O98TD8 PRELIMINARY; PRT: 125 AA.  
 AC O98TD8;  
 DT 01-JUN-2001 (TREMBlrel. 17, Created)  
 DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
 DE Fibroblast growth factor-2 (Fragment).  
 GN FGF-2.  
 OS Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.  
 OX NCBI\_TaxID=8330;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Mizuno N., Hayashi T., Kondoh H., Okamoto M.;  
 RT "Cynops fibroblast growth factor-2."  
 RT Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AB049625; BAB40835.1;  
 DR HSSP; P09038; 1BFF.  
 DR InterPro; IPR002209; HB/F-growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F-growthfact; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 DR NON\_TER 1  
 FT NON\_TER 1  
 SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;  
 Query Match 72.2%; Score 567; DB 13; Length 125;  
 Best Local Similarity 87.1%; Pred. No. 7.8e-54;  
 Matches 109; Conservative 7; Mismatches 9; Indels 0; Gaps 0;  
 OY 23 LYCRNGGFFLRHPDGRVGVREKSDPHIKLOAERGVVSIKVCANRYLAKMKEDGRL 82  
 DB 2 LYCRNGGFFLRINSDDGKVDGAREKSDSYIKLOAERGVVSIKVCANRYLAKMKEDGRL 61  
 OY 83 LASKCVTDCFFERLESNNYNTYRSRKYTSWYALKRTGQYKLSKTGPGOKAILFLPM 142  
 DB 62 MALKWITDCFFERLESNNYNTYRSRKYSDWYALKRTGQYKLSKTGAGOKAILFLPM 121  
 OY 143 SAKS 146  
 DB 122 SAKS 125  
 RESULT 9  
 O9N1S7 PRELIMINARY; PRT: 108 AA.  
 AC O9N1S7;  
 DT 01-OCT-2000 (TREMBlrel. 15, Created)  
 DT 01-OCT-2000 (TREMBlrel. 15, Last sequence update)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (Fragment).  
 GN BRGF.  
 OS Capreolus capreolus (roe deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;  
 OC Cervidae; Odocoileinae; Capreolus.  
 OX NCBI\_TaxID=9858;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA ISSUE-TESTIS;  
 RC MEDLINE=20532861; PubMed=11078967;  
 RX

RA Magener A., Biotner S., Goritz F., Fickel J.  
RT "Detection of growth factors in the testis of roe deer (Capreolus  
capreolus).";  
RL Anlm. Reprod. Sci. 64:65-75(2000).  
DR EMBL: AF152587; AAF73226.1; -.  
DR HSSP: P09038; 4FGF.  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR InterPro: IPR002348; IL1\_HBGF.  
DR Pfam: PF00167; FGF; 1.  
DR PRINTS: PR00262; IL1HBGF.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
DR SMART: SM00442; FGF; 1.  
DR PROSITE: PS00247; HBGF\_FGF; 1.  
FT NON\_TER 1  
FT 108  
SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match 71.5%; Score 561; DB 6; Length 108;  
Best Local Similarity 98.1%; Pred. No. 2.9e-53;  
Matches 106; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 33 RIHPDGVGVREKSPDHKIQLOAEERGVSVIKGCANRYLAMKEDGRLLASKCVTDEC 92  
DB 1 RIHPDGVGVREKSPDHKIQLOAEERGVSVIKGCANRYLAMKEDGRLLASKCVTDEC 60  
OY 93 FFERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPGRKAILFL 140  
DB 61 FFERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPGRKAILFL 108

## RESULT 10

O925A1 PRELIMINARY; PRT; 109 AA.

AC O925A1:  
DT 01-DEC-2001 (TREMBLrel. 19, Created)  
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE Fibroblast growth factor 2.  
GN FGF2.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RA STRAIN-FVB/N;  
RA Dirks R.P., Grlep A.E.;  
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
expressed in mouse embryos."  
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL: AV027558; AAK52310.1; -.  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR InterPro: IPR002348; IL1\_HBGF.  
DR Pfam: PF00167; FGF; 1.  
DR PRINTS: PR00262; IL1HBGF.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
DR PROSITE: PS00247; HBGF\_FGF; UNKNOWN\_1.  
SQ SEQUENCE 109 AA; 12388 MW; 61074ADE33030C860 CRC64;

Query Match 62.4%; Score 490; DB 11; Length 109;  
Best Local Similarity 97.9%; Pred. No. 1.5e-45;  
Matches 94; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 51 IKILOAEERGVSVIKGCANRYLAMKEDGRLLASKCVTDECFFERLESNNYNTYRSRK 110  
DB 14 IKILOAEERGVSVIKGCANRYLAMKEDGRLLASKCVTDECFFERLESNNYNTYRSRK 73  
OY 111 YTSWYVALKRTGQYKLGSKTGPGRKAILFLPMSAKS 146  
DB 74 YTSWYVALKRTGQYKLGSKTGPGRKAILFLPMSAKS 109

## RESULT 11

O925A2 PRELIMINARY; PRT; 112 AA.

AC O925A2:  
DT 01-DEC-2001 (TREMBLrel. 19, Created)  
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE Fibroblast growth factor 2.  
GN FGF2.

OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.

RA STRAIN-FVB/N;  
RA Dirks R.P., Grlep A.E.;  
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
expressed in mouse embryos."  
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.

DR EMBL: AI027557; AAK52309.1; -.  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR InterPro: IPR002348; IL1\_HBGF.  
DR Pfam: PF00167; FGF; 1.  
DR PRINTS: PR00262; IL1HBGF.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
DR PROSITE: PS00247; HBGF\_FGF; UNKNOWN\_1.  
SQ SEQUENCE 112 AA; 12725 MW; B00557ABE0257CCB CRC64;

Query Match 61.9%; Score 486; DB 11; Length 112;  
Best Local Similarity 97.9%; Pred. No. 4.2e-45;  
Matches 93; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 52 KLOLOAEERGVSVIKGCANRYLAMKEDGRLLASKCVTDECFFERLESNNYNTYRSKY 111  
DB 18 KLOLOAEERGVSVIKGCANRYLAMKEDGRLLASKCVTDECFFERLESNNYNTYRSKY 77  
OY 112 TSWYVALKRTGQYKLGSKTGPGRKAILFLPMSAKS 146  
DB 78 TSWYVALKRTGQYKLGSKTGPGRKAILFLPMSAKS 112

## RESULT 12

P79706 PRELIMINARY; PRT; 101 AA.

AC P79706:  
DT 01-MAY-1997 (TREMBLrel. 03, Created)  
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE Basic FGF (Fragment).  
OS Cynops pyrrhogaster (Japanese common newt).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Amphibia; Batrachia; Caudata; Salamandridae; Salamandridae; Cynops.  
OX NCBI\_TaxID=8330;  
RN [1]  
RP SEQUENCE FROM N.A.

RA TISSUE-EMBRO;  
RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,  
Kaneda T.;  
RT "Serial expression of the genes in a mesodermallizing ectoderms of

RT early Cynops gastrula.";  
RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.  
DR EMBL: D89443; BAA13958.1; -.  
DR HSSP: P09038; 4FGF.

DR InterPro: IPR002209; HB/F\_growthfact.  
DR InterPro: IPR002348; IL1\_HBGF.  
DR Pfam: PF00167; FGF; 1.

DR PRINTS: PR00262; IL1HBGF.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
DR SMART: SM00442; FGF; 1.  
DR PROSITE: PS00247; HBGF\_FGF; 1.  
FT NON\_TER 1  
FT 101  
SQ SEQUENCE 101 AA; 11907 MW; 7A16C866C1F457A CRC64;

Query Match 60.6%; Score 476; DB 13; Length 101;  
 Best Local Similarity 87.1%; Pred. No. 4.5e-44;  
 Matches 88; Conservative 7; Mismatches 6; Indels 0; Gaps 0;

OY 20 PKRLCKNGGFFLRHPDGRVDRKSDPHIKLOAERGVSIGVCANRYLAMKED 79  
 DB 1 PKRLCKNGGFFLRHPDGRVDRKSDPHIKLOAERGVSIGVCANRYLAMKED 60  
 OY 80 GRLASKCVTDECFEERLESNNYTRSRKTSYVALKR 120  
 DB 61 GRLALKWITDECFEERLESNNYTRSRKTSYVALKR 101

## RESULT 13

ID 007659 PRELIMINARY; PRT; 146 AA.  
 AC 007659;  
 DT 01-NOV-1996 (TREMBLrel. 01, Created)  
 DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor.  
 GN BFGF.  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Archaeoptera; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 NC NCBL\_TaxID=9031;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=93246053; PubMed=7683281;  
 RA Borja A.Z., Zeller R., Meljers C.;  
 RT "Expression of alternatively spliced bFGF first coding exons and  
 RT antisense mRNAs during chicken embryogenesis.";  
 RL Dev. Biol. 157:110-118(1993).  
 RN [2]  
 RP SEQUENCE OF 52-85 FROM N.A.  
 RX MEDLINE=90382254; PubMed=2401202;  
 RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;  
 RT "Fibroblast growth factor during mesoderm induction in the early chick  
 RT embryo.";  
 RL Development 109:387-393(1990).  
 DR EMBL; M5706; AAA48616.1; -;  
 DR EMBL; X56804; CAA40139.1; -;  
 DR HSSP; P09038; 2BRH.  
 DR InterPro; IPR002209; HB/F-growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PRO0262; IL1HBGF.  
 DR ProDom; PD000831; HB/F-growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 SO SEQUENCE 146 AA; 16182 MW; A7CB97CB456E247 CRC64;

Query Match 59.7%; Score 468.5; DB 13; Length 146;  
 Best Local Similarity 65.8%; Pred. No. 4.7e-43;  
 Matches 96; Conservative 8; Mismatches 15; Indels 27; Gaps 2;

OY 1 PALPDGSGGAFPPGHFRDPRKLYCKNGGFFLRHPDGRVDRKSDPHIKLOAER 60  
 DB 28 PSLSPDGV-----LMEVRVRDERVSAM-----VKLOAER 60  
 OY 61 GVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYTRSRKTSYVALKR 120  
 DB 61 GVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYTRSRKTSYVALKR 120  
 OY 121 TGOYKSGTGPGRKAILFLPMAS 146  
 DB 121 TGOYKSGTGPGRKAILFLPMAS 146

## RESULT 14

O8MMP4

ID O8MMP4 PRELIMINARY; PRT; 87 AA.

AC O8MMP4;  
 DT 01-MAR-2002 (TREMBLrel. 20, Created)  
 DT 01-MAR-2002 (TREMBLrel. 20, Last sequence update)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor 2 (Fragment).  
 GN FGF2.  
 OS Equus caballus (Horse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
 NC NCBL\_TaxID=9796;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX TISSUE-ENDOMETRIUM;  
 RA Einspanier R.;  
 RL Submitted (JUN-2001) to the EMBL/GenBank/DBJ databases.  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX TISSUE-ENDOMETRIUM;  
 RA Welter H.;  
 RL Thesis (2002), Department of Physiology, University of Munich,  
 RL Frießling, Germany.  
 DR EMBL; AJ319906; CAC86028.1; -;  
 DR InterPro; IPR002209; HB/F-growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PRO0262; IL1HBGF.  
 DR ProDom; PD000831; HB/F-growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; UNKNOWN\_1.  
 FT NON\_TER 1  
 FT TER 87  
 SO SEQUENCE 87 AA; 10128 MW; 52382DDF0245739E CRC64;

Query Match 58.2%; Score 457; DB 6; Length 87;  
 Best Local Similarity 98.9%; Pred. No. 4.3e-42;  
 Matches 86; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 32 LRHPDGRVDRKSDPHIKLOAERGVSIGVCANRYLAMKEDGRLASKCVTDE 91  
 DB 1 LRHPDGRVDRKSDPHIKLOAERGVSIGVCANRYLAMKEDGRLASKCVTDE 60  
 OY 92 CFEERLESNNYTRSRKTSYVAL 118  
 DB 61 CFEERLESNNYTRSRKTSYVAL 87

## RESULT 15

ID O9NOV2 PRELIMINARY; PRT; 76 AA.  
 AC O9NOV2;  
 DT 01-OCT-2000 (TREMBLrel. 15, Created)  
 DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)  
 DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (Fragment).  
 GN FGF-2.  
 OS Ovis aries (sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 CC Bovidae; Caprinae; Ovis.  
 NC NCBL\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX TISSUE-FETAL PLACENTAL ARTERY;  
 RA Zheng J., Tsol S.C., Magness R.R.;  
 RT "Growth factor expression in ovine fetal placental artery endothelial  
 RT cells.";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF250027; AAF65566.1; -;  
 DR SGP; P09038; 4FGF.  
 DR InterPro; IPR002309; HB/F-growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.

Wed Dec 4 15:10:45 2002

us-09-886-856-4.rspt

Page 7

DR PRINTS: PR00262; 111HBGF.  
DR PRODOM; PD000831; HB/E\_growthfact; 1.  
DR SMART; SM00442; FGF; 1.  
DR PROSITE; PS00247; HBGF\_FGF; 1.  
FT NON\_TER 1 1  
FT NON\_TER 76 76  
SQ SEQUENCE 76 AA; 8796 MW; 7D984E2F97453B20 CRC64;

Query Match 43.4%; Score 341; DB 6; Length 76;  
Best Local Similarity 88.0%; Pred. No. 1.4e-29;  
Matches 66; Conservative 1; Mismatches 0; Indels 8; Gaps 1;

QY 48 DPHIKLOLAERGVSVISIKVCANRYLAMKEDGRLASKCVTDCEFFPERLESNNYNTYR 107  
Db 1 DPHIKLOLAERGVSVISIKVCANRYLAMKEDGRLASKCVTDCEFFPERLESNNYNTYR 60  
QY 108 SRKY-----TSM 114  
Db 61 SRKYSQLYVCGTETNM 75

Search completed: December 4, 2002, 11:12:13  
Job time : 27.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:52:55 ; Search time 32 Seconds  
(Without alignments)  
645,433 Million cell updates/sec

Title: US-09-886-856-6

Perfect score: 828  
Sequence: 1 MAAGSTTPALPEDGSGA.....GPKTGGOKALFLPMSAKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0  
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :

1: /SID2/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.\*  
2: /SID2/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.\*  
3: /SID2/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.\*  
4: /SID2/gcgdata/geneseq/geneseq-emb1/AA1983.DAT.\*  
5: /SID2/gcgdata/geneseq/geneseq-emb1/AA1984.DAT.\*  
6: /SID2/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.\*  
7: /SID2/gcgdata/geneseq/geneseq-emb1/AA1986.DAT.\*  
8: /SID2/gcgdata/geneseq/geneseq-emb1/AA1987.DAT.\*  
9: /SID2/gcgdata/geneseq/geneseq-emb1/AA1988.DAT.\*  
10: /SID2/gcgdata/geneseq/geneseq-emb1/AA1989.DAT.\*  
11: /SID2/gcgdata/geneseq/geneseq-emb1/AA1990.DAT.\*  
12: /SID2/gcgdata/geneseq/geneseq-emb1/AA1991.DAT.\*  
13: /SID2/gcgdata/geneseq/geneseq-emb1/AA1992.DAT.\*  
14: /SID2/gcgdata/geneseq/geneseq-emb1/AA1993.DAT.\*  
15: /SID2/gcgdata/geneseq/geneseq-emb1/AA1994.DAT.\*  
16: /SID2/gcgdata/geneseq/geneseq-emb1/AA1995.DAT.\*  
17: /SID2/gcgdata/geneseq/geneseq-emb1/AA1996.DAT.\*  
18: /SID2/gcgdata/geneseq/geneseq-emb1/AA1997.DAT.\*  
19: /SID2/gcgdata/geneseq/geneseq-emb1/AA1998.DAT.\*  
20: /SID2/gcgdata/geneseq/geneseq-emb1/AA1999.DAT.\*  
21: /SID2/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.\*  
22: /SID2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.\*  
23: /SID2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match Length	ID	Description
1	828	100.0	155 8 AAP70671	Sequence of bovine
2	828	100.0	155 22 AAP11975	Bovine fibroblast
3	828	100.0	155 23 AAP21686	Bovine fibroblast
4	828	100.0	155 23 AAU12080	Bovine 155 amino a
5	825	99.6	155 18 AAM20029	Recombinant bovine
6	817	98.7	155 8 AAP70301	Sequence of human
7	817	98.7	155 10 AAP94038	Human basic fibrob
8	817	98.7	155 11 AAR05314	Human basic fibrob
9	817	98.7	155 13 AAR22232	bFGF truncated at
10	817	98.7	155 14 AAR40159	Human bFGF peptide

11	817	98.7	155 16 AAR80777	Fibroblast growth
12	817	98.7	155 16 AAR70204	Human bFGF. Homo
13	817	98.7	155 16 AAR70823	FGF-2. Homo sapie
14	817	98.7	155 18 AAM33338	Human fibronectin
15	817	98.7	155 18 AAM19595	Biologically activ
16	817	98.7	155 19 AAY05456	Fibronectin recept
17	817	98.7	155 19 AAW75712	Fibroblast growth
18	817	98.7	155 19 AAW71379	18 kDa form of fib
19	817	98.7	155 19 AAW53023	Fibroblast growth
20	817	98.7	155 20 AAM99380	18 kD isoform of h
21	817	98.7	155 21 AAB10298	Fibroblast growth
22	817	98.7	155 21 AAY96873	Human fibroblast g
23	817	98.7	155 21 AAY96893	Human fibroblast g
24	817	98.7	155 21 AAY90411	FGF-2 (bFGF), SBO
25	817	98.7	155 21 AAY90448	Human FGF-2 (bFGF)
26	817	98.7	155 21 AAY32334	Human fibroblast g
27	817	98.7	155 22 AAG65648	Human fibroblast g
28	817	98.7	155 22 AAE11976	Human fibroblast g
29	817	98.7	155 22 AAB85813	Human fibroblast g
30	817	98.7	155 22 AAB99918	Human FGF-2 protei
31	817	98.7	155 22 AAG64317	Human FGF-2 protei
32	817	98.7	155 22 AAG64847	Heart muscle cell
33	817	98.7	155 22 AAB84597	Amino acid sequenc
34	817	98.7	155 22 AAY72909	Truncated form of
35	817	98.7	155 22 AAB61662	FGF2 protein. Hom
36	817	98.7	155 22 AAB50274	Human basic fibrob
37	817	98.7	155 23 ABB83825	Human bFGF related
38	817	98.7	155 23 AAE21685	Human fibroblast g
39	817	98.7	155 23 AAE18807	Human FGF-2 protei
40	817	98.7	155 23 AAU12081	Human 155 amino ac
41	817	98.7	155 23 AAU11111	Human fibroblast g
42	817	98.7	157 8 AAP71085	Sequence of human
43	817	98.7	158 18 AAW31664	Leaderless protein
44	817	98.7	158 22 AAU08594	Human basic fibrob
45	817	98.7	158 22 AAG78316	Human basic fibrob

## ALIGNMENTS

RESULT 1

AA70671 standard; Protein; 155 AA.

AC AAP70671:

DT 18-APR-1991 (first entry)

DE Sequence of bovine basic fibroblast growth factor (bFGF).

DE Wound healing; tissue repair; tumour probe.

OS Bos taurus.

XX

XX Key

XX Peptide

XX Protein

XX Location/Qualifiers

XX 1..9

XX 10..155

XX MO8701728-A.

XX 26-MAR-1987.

XX 11-SEP-1986; 86WO-US01879.

XX 30-MAY-1986; 86US-0869382.

XX 12-SEP-1985; 85US-0775521.

XX 16-DEC-1985; 85US-0809163.

XX (BIOT-) BIOTECHN RES PARTNE.

XX Fiddes JC, Abraham JA.

XX WPI, 1987-093786/13.

DR N-PSDB; AAN71024.  
 XX New DNA sequences encoding mammalian fibroblast growth factors -  
 PT useful in prodn. of pure factors for use in wound healing and  
 PT tissue repair and of probe for tumour testing  
 XX  
 PS Claim 11; Fig 3; 89pp; English.  
 CC The N-terminal AA sequence of both acidic and basic bovine FGF are  
 CC used to construct long probes to screen human and bovine genomic  
 CC libraries for FGF genes. Isolated sequences are used in vector  
 CC construction etc. and used to transform CV-1 cells for FGF prodn.  
 CC  
 XX Sequence 155 AA;  
 SO  
 Query Match 100.0%; Score 828; DB 8; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 1,1e-82;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Oy 1 MAAGSITLPLPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Db 1 MAAGSITLPLPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Oy 61 KLQLOAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSKY 120  
 Db 61 KLQLOAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSKY 120  
 Oy 121 SSMVYALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 Db 121 SSMVYALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 RESULT 2  
 AAE11975  
 ID AAE11975 standard; Protein; 155 AA.  
 XX  
 AC AAE11975;  
 XX  
 DT 18-DEC-2001 (first entry)  
 XX  
 DE Bovine fibroblast growth factor-2 (FGF-2) #2.  
 XX  
 KW Bovine; therapy; erectile dysfunction; fibroblast growth factor-2; FGF-2;  
 KW epidermal growth factor; EGF; platelet derived growth factor; PDGF;  
 KW vascular endothelial growth factor; VEGF; tissue growth factor; TGF;  
 KW impotence; vasotrophic.  
 XX  
 OS Bos taurus.  
 XX  
 WO200168125-A2.  
 XX  
 PN 20-SEP-2001.  
 XX  
 PD 09-MAR-2001; 2001WO-US07702.  
 XX  
 PF 10-MAR-2000; 2000US-188480P.  
 XX  
 PR 11-MAY-2000; 2000US-203415P.  
 XX  
 PA (CHIR ) CHIRON CORP.  
 XX  
 PI Whitehouse NJ;  
 XX  
 DR WPI; 2001-616273/71.  
 XX  
 DR N-PSDB; AAD19522.  
 XX  
 PT Treating or preventing erectile dysfunction, comprises administering  
 PT growth factor, particularly fibroblast growth factor to blood vessels  
 PT in the penis, groin or leg  
 XX  
 PS Claim 6; Page 33; 35pp; English.  
 CC The present invention relates to a method for treating or preventing  
 CC erectile dysfunction, comprising administering a fibroblast growth

CC factor (FGF), epidermal growth factor (EGF), platelet derived growth  
 CC factor (PDGF), vascular endothelial growth factor (VEGF) or tissue  
 CC growth factor (TGF). The invention is used to treat or prevent erectile  
 CC dysfunction, or impotence. The present sequence is a bovine FGF-2  
 CC protein.  
 XX  
 SO Sequence 155 AA;  
 Query Match 100.0%; Score 828; DB 22; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 1,1e-82;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 Oy 1 MAAGSITLPLPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Db 1 MAAGSITLPLPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Oy 61 KLQLOAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSKY 120  
 Db 61 KLQLOAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSKY 120  
 Oy 121 SSMVYALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 Db 121 SSMVYALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 RESULT 3  
 AAE21686  
 ID AAE21686 standard; Protein; 155 AA.  
 XX  
 AC AAE21686;  
 XX  
 DT 16-JUL-2002 (first entry)  
 XX  
 DE Bovine fibroblast growth factor-2 (FGF-2) protein.  
 XX  
 KW Bovine; pharmaceutical composition; fibroblast growth factor; FGF;  
 KW tissue regeneration; therapy; wound; ischaemic heart disease; stroke;  
 KW bone fracture healing; vulnerary; cerebroprotective; vasotrophic.  
 XX  
 OS Bos taurus.  
 XX  
 FH Key Location/Qualifiers  
 FH Binding-site 27..31  
 FT Binding-site /note= "Heparin binding site"  
 FT Binding-site 45..48  
 FT Binding-site /note= "Cell binding site"  
 FT Binding-site 86..90  
 FT Binding-site /note= "Cell binding site"  
 FT Binding-site 116..120  
 FT Binding-site /note= "Heparin binding site"  
 XX  
 PN WO200217956-A2.  
 XX  
 PD 07-MAR-2002.  
 XX  
 PF 31-AUG-2001; 2001WO-US27209.  
 XX  
 PR 31-AUG-2000; 2000US-229238P.  
 XX  
 PA (CHIR ) CHIRON CORP.  
 XX  
 PI Hageman RV, Shirley BA, Bajwa KK;  
 XX  
 DR WPI; 2002-329732/36.  
 XX  
 DR N-PSDB; AAD34057.  
 XX  
 PT Stabilized pharmaceutical composition comprising fibroblast growth  
 PT factor or its variant, and reducing agent to inhibit oxidation of  
 PT fibroblast growth factor, useful for promoting wound healing and  
 PT treating stroke  
 XX  
 PS Disclosure; Page 48; 52pp; English.  
 CC

CC The invention relates to pharmaceutical composition comprising stabilised  
 CC fibroblast growth factor (FGF) or its variant. Methods for increasing  
 CC storage stability of FGF or its variant in a liquid or lyophilised  
 CC composition is also provided. The method is useful for increasing storage  
 CC stability of a pharmaceutical composition comprising FGF or its variant  
 CC which becomes oxidised during storage. The pharmaceutical composition is  
 CC useful for promoting tissue regeneration, treating wounds, ischaemic  
 CC heart diseases, stroke and is used for bone fracture healing. The present  
 CC sequence is bovine FGF-2 protein.

XX Sequence, 155 AA;

Query Match 100.0%; Score 828; DB 23; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 1,1e-82;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGSGAPPFGHFKDPKRLYCNGGFFLRHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITLPLPEDGSGAPPFGHFKDPKRLYCNGGFFLRHPDGRVDGVRKSDPHI 60

QY 61 KLQLQAEERGVVISIKGVCANRYLAKMEDGRLLASKCVTDECFEFLRLSNNTYRSRY 120  
 DB 61 KLQLQAEERGVVISIKGVCANRYLAKMEDGRLLASKCVTDECFEFLRLSNNTYRSRY 120

QY 121 SSMVYALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 SSMVYALKRTGQYKLGPKTGPQKAILFLPMSAKS 155

#### RESULT 4

AAU12080  
 ID AAU12080 standard; Protein; 155 AA.

XX AAU12080;

DT 09-APR-2002 (first entry)

XX Bovine 155 amino acid fibroblast growth factor-2 (bFGF-2) protein.

XX Bovine; peripheral artery disease; PAD; fibroblast growth factor-2;  
 XX FGF-2; peak walking time; ankle brachial index; body pain;

XX static climbing ability; claudication; critical limb ischaemia; stroke;  
 XX cardiovascular disorder; diabetes; dyslipidaemia; hypertension.

XX Bos taurus.

XX WO200198346-A2.

XX 27-DEC-2001.

XX 22-JUN-2001; 2001WO-US19978.

XX 22-JUN-2000; 2000US-213504P.

XX 26-JAN-2001; 2001US-264572P.

XX 16-MAR-2001; 2001US-276549P.

XX 21-JUN-2001; 2001US-0886856.

XX (CHIR) CHIRON CORP.

XX Whitehouse MJ;

XX WPI; 2002-147794/19.

XX N-PSDB; AAS20935.

XX Treating peripheral artery disease, for improving peak walking time and  
 XX ankle brachial index with intermittent claudication in a patient,  
 XX comprises administering fibroblast growth factor in two doses at one  
 XX hour interval

XX Claim 11; Fig 4; 99p; English.

XX The present invention relates to compositions and methods for treating  
 XX peripheral artery disease. The method comprises administering fibroblast

CC growth factor-2 (bFGF-2) to a patient in two doses, where a single dose  
 CC is administered into each leg of the patient within a one hour period.  
 CC FGF-2 is useful for treating peripheral artery disease, improving  
 CC peak walking time with intermittent claudication, improving ankle  
 CC brachial index with intermittent claudication, reducing body pain,  
 CC improving static climbing ability and reducing the severity of the  
 CC claudication. FGF-2 is also useful for treating or preventing  
 CC peripheral artery disease (PAD) including claudication and critical  
 CC limb ischaemia, and even those suffering from a wide spectrum of related  
 CC clinical ailments including coronary artery disease (CAD), myocardial  
 CC infarctions, stroke, diabetes, dyslipidaemias, hypertension and patients  
 CC who have had surgical or catheter-based revascularisations. The present  
 CC sequence represents bovine 155 amino acid FGF-2 protein.

XX Sequence 155 AA;

Query Match 100.0%; Score 828; DB 23; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 1,1e-82;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGSGAPPFGHFKDPKRLYCNGGFFLRHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITLPLPEDGSGAPPFGHFKDPKRLYCNGGFFLRHPDGRVDGVRKSDPHI 60

QY 61 KLQLQAEERGVVISIKGVCANRYLAKMEDGRLLASKCVTDECFEFLRLSNNTYRSRY 120  
 DB 61 KLQLQAEERGVVISIKGVCANRYLAKMEDGRLLASKCVTDECFEFLRLSNNTYRSRY 120

QY 121 SSMVYALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 SSMVYALKRTGQYKLGPKTGPQKAILFLPMSAKS 155

#### RESULT 5

AAW20029  
 ID AAW20029 standard; Protein; 155 AA.

XX AAW20029;

XX 18-SEP-1997 (first entry)

XX Recombinant bovine basic fibroblast growth factor.

XX FGF: fibroblast growth factor; basic; acidic; wound healing;  
 XX neurodegenerative disease; Parkinson's; Alzheimer's disease;  
 XX bone fracture; biologically active; embolism.

XX Bos taurus.

XX OS

XX FH

XX Key Location/Qualifiers  
 XX Peptide 1..9  
 XX Protein /label= sig\_peptide  
 XX /label= mat\_protein

XX US5604293-A.

XX 18-FEB-1997.

XX 12-SEP-1985; 85US-0775521.

XX 15-MAY-1987; 87US-0050706.

XX 12-SEP-1985; 85US-0775521.

XX 16-DEC-1985; 85US-0809163.

XX 30-MAY-1986; 86US-0869382.

XX 30-MAR-1992; 92US-0860688.

XX 01-APR-1994; 94US-0221462.

XX (SCIO-) SCIOS INC.

XX Abraham JA, Fiddes JC;  
 XX WPI; 1997-234676/21.



DR N-PSDB; AAT71236.  
 XX New high purity, recombinant human basic fibroblast growth factor -  
 PT for promoting wound healing and treating neurodegenerative  
 PT diseases, suitable for production on large scale  
 XX  
 PS Example 5; Fig 3; 34p; English.  
 XX  
 CC AAW20029 is a recombinant bovine basic fibroblast growth factor (bFGF).  
 CC Recombinant bFGF is used to promote healing of wounds, bone fractures,  
 CC damaged myocardial tissue etc. and, since it increases neuronal  
 CC survival and promotes neurite outgrowth, may also be used in treatment  
 CC of neurological disorders such as Alzheimer's and Parkinson's diseases.  
 CC bFGF may also be used for detection of specific inhibitors; for  
 CC treatment of cell cultures in vitro before transplant and for inducing  
 CC release of tissue plasminogen activator or collagenase, e.g. for  
 CC treatment of a chronic tendency to form embolism. Recombinant bFGF can  
 CC be produced on a large scale.  
 CC  
 XX Sequence 155 AA;  
 SO  
 Query Match 99.6%; Score 825; DB 18; Length 155;  
 Best Local Similarity 99.4%; Pred. No. 2.4e-82;  
 Matches 154; Conservative 1; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPKRLCYKNGGFRLRHPDGRVDGVRKSDPHI 60  
 DB 1 MASSITTLPLPBDGSGAAPPFGHFKDPKRLCYKNGGFRLRHPDGRVDGVRKSDPHI 60  
 QY 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 DB 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 QY 121 SSWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 SSWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 RESULT 6  
 AAP70301  
 ID AAP70301 standard; Protein; 155 AA.  
 XX  
 AC AAP70301;  
 XX  
 DT 05-JUN-1991 (first entry)  
 XX  
 DE Sequence of human basic fibroblast growth factor (hbFGF).  
 XX  
 KW Fibroblast growth promoter; mesoderm cell growth promoter;  
 KW wound healing.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Peptide 1..9  
 FT Protein 10..155  
 FT /note="claimed"  
 XX  
 EP237966-A.  
 PN  
 PD 23-SEP-1987.  
 XX  
 PF 12-MAR-1987; 87EP-0103601.  
 XX  
 PR 29-SEP-1986; 86JP-0231428.  
 PR 14-MAR-1986; 86JP-0057919.  
 PR 09-APR-1986; 86JP-0082699.  
 PR 09-OCT-1986; 86JP-0241053.  
 XX  
 PA (TAKE ) TAKEDA CHEMICAL IND KK.  
 PI Kurokawa T, Sasada R, Iwane M, Igarashi K;  
 XX

DR WPI; 1987-265363/38.  
 DR N-PSDB; AAN70494.  
 XX Human basic fibroblast growth factor - produced by recombinant  
 PT DNA techniques, useful for healing wounds, prophylaxis,  
 PT thrombosis and arteriosclerosis treatment, etc.  
 XX  
 PS Disclosure; Fig 1; 38p; English.  
 XX  
 CC hbFGF is produced using cDNA prepd. from RNA isolated from M138 or  
 CC IMR90 human fibroblasts. hbFGF promotes growth of fibroblasts and  
 CC other mesoderm-derived cells and is useful for promoting healing of  
 CC wounds (eg burns), for prophylaxis and treatment of thrombosis and  
 CC arteriosclerosis, and as a promoter for cell culture.  
 CC  
 XX Sequence 155 AA;  
 SO  
 Query Match 98.7%; Score 817; DB 8; Length 155;  
 Best Local Similarity 98.7%; Pred. No. 1.8e-81;  
 Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPKRLCYKNGGFRLRHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPKRLCYKNGGFRLRHPDGRVDGVRKSDPHI 60  
 QY 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 DB 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 QY 121 SSWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
 RESULT 7  
 AAP94038  
 ID AAP94038 standard; protein; 155 AA.  
 XX  
 AC AAP94038;  
 XX  
 DT 25-JUN-1990 (first entry)  
 XX  
 DE Human basic fibroblast growth factor.  
 XX  
 KW Basic fibroblast growth factor; pUC9-TSFl1; pUC9delH3-PTSF-3.  
 XX  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 78  
 FT /label=Cys  
 FT /note="replaced by Ser or Ala"  
 FT Misc-difference 96  
 FT /label=Cys  
 FT /note="replaced by Ser or Ala"  
 FT Misc-difference 128  
 FT /label=Lys  
 FT /note="replaced by Ser or Glu"  
 FT Misc-difference 129  
 FT /label=Arg  
 FT /note="replaced by Thr"  
 FT Misc-difference 138  
 FT /label=Lys  
 FT /note="replaced by Ser"  
 FT 128..138  
 FT /label=heparin-binding domain  
 XX  
 EP298723-A.  
 PN  
 PD 11-JAN-1989.  
 XX  
 PF 06-JUL-1988; 88EP-0306158.  
 XX

```

PR 07-JUL-1987; 87US-0070797.
XX (BIOT-) BIOTECHN RES ASSOC.
XX
XX Fildes JC, Abraham JA, Protter A;
XX
XX WPI; 1989-009785/02.
DR N-PSDB; AAN93087.
XX
XX Recombinant DNA encoding new fibroblast growth factor
PT analogues - useful eg for accelerating wound healing and
PT to control neovascularisation.
XX
XX Disclosure; d 1-2; 44pp; English.
XX
XX DNA encoding the sequence may be mutated to encode an analogue, of human
CC basic fibroblast growth factor (bFGF) bFGF-C78/96S, which has reduced
CC affinity for heparin. One or more positively-charged AAs in the heparin-
CC binding domain (AAs 128-138) are replaced by neutral or negatively-
CC charged residues as indicated in the feature table. A recombinant vector
CC (pUC9-TSFl1 or pUC9delH3-PTSf-3) contg. the mutated DNA can be used to
CC transform bacterial or mammalian host cells for prodn. of the analogue.
CC See also AAP94038.
XX
SQ Sequence 155 AA;
Query Match 98.7%; Score 817; DB 10; Length 155;
Best Local Similarity 98.7%; Pred. No. 1.8e-81;
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFLLRIHPDGRVGVREKSDPHI 60
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFLLRIHPDGRVGVREKSDPHI 60
QY 61 KLQLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDECFFPERLESNNYNTYRSRKY 120
DB 61 KLQLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDECFFPERLESNNYNTYRSRKY 120
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 8
AAR05314
ID AAR05314 standard; protein; 155 AA.
XX
XX AAR05314;
AC
XX 10-OCT-1990 (first entry)
DT
XX Human basic fibroblast growth factor (FGF).
DE
XX Fibroblast growth factor; FGF; yeast; ischaemia; ds.
KM
XX Synthetic.
OS
XX WO9005184-A.
PN
XX 17-MAY-1990.
PD
XX 03-NOV-1989; 89WO-0004821.
PF
XX 04-NOV-1988; 88US-0267408.
PR
XX (CHIR-) CHIRON CORP.
XX
XX Barr PJ;
PI
XX WPI; 1990-178825/23.
XX
XX N-PSDB; AAO04716.
XX
XX Yeast prodn. of human basic and acidic fibroblast growth factor -
PT

```

```

PT with acetylated amino-terminal, useful eg. for treating cell
PT senescence, neuronal regression and cell death.
XX
XX Disclosure; ; p; English.
XX
XX FGF have applications such as in vivo nerve regeneration, wound
CC repair ischaemia and corneal repair. They may also have therapeutic
CC uses in the CNS and PNS in treatment of cell death and neuronal
CC regression.
XX
XX Sequence 155 AA;
SQ
Query Match 98.7%; Score 817; DB 11; Length 155;
Best Local Similarity 98.7%; Pred. No. 1.8e-81;
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFLLRIHPDGRVGVREKSDPHI 60
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFLLRIHPDGRVGVREKSDPHI 60
QY 61 KLQLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDECFFPERLESNNYNTYRSRKY 120
DB 61 KLQLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDECFFPERLESNNYNTYRSRKY 120
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 9
AAR22232
ID AAR22232 standard; protein; 155 AA.
XX
XX AAR22232;
AC
XX 23-JUN-1992 (first entry)
DT
XX bFGF truncated at its N-terminus.
DE
XX Basic fibroblast growth factor; adduct; heparin; heperan sulphate;
KM pepsin A; cathepsin D; wounds; burns.
KW
XX Synthetic.
OS
XX WO9202539-A.
PN
XX 20-FEB-1992.
PD
XX 30-JUL-1991; 91WO-EP01428.
PF
XX 02-AUG-1990; 90GB-0017008.
PR
XX (FARM ) FARMITALIA C.ERBA SRL.
XX
XX Monsan P, Paul F, Belbeder D, Sarmientos P;
PI
XX WPI; 1992-080021/10.
DR
XX
XX Prepn. of basic fibroblast growth factor - by forming adduct with
PT heparin or heparan sulphate and cleaning with pepsin A or
PT cathepsin D
XX
XX Claim 4; Page 27; 36pp; English.
XX
XX The peptide sequence was deduced from the synthetic DNA sequence
CC prep'd. as described in EP-363675. E. coli cells transformed with the
CC synthetic DNA were lysed and the supernatant purified, giving a
CC 50:50 mixture of a 154 residue bFGF (2-155) having the amino acid
CC sequence of the 155 residue form (Abraham et al., Science, 233, 545-
CC 548, 1986) shown here but without the N-terminal Met; and a 153
CC residue bFGF (3-155). An adduct of bFGF formed with heparin or
CC heperan sulphate contg. the bFGF 9-10 leu-pro bond can be cleaved
CC with pepsin A or cathepsin D to cleave this bond and release a

```

peptide with the N-terminus be deleted up to and including residue 9, sequentially. This cleavage method can be used to obtain a pure form of the 146 amino acid bFGF (10-155) bFGF. The prod. can be used to treat wounds and burns.  
See also AAR22233.

Sequence 155 AA;

Query Match 98.7%; Score 817; DB 13; Length 155;  
Best Local Similarity 98.7%; Pred. No. 1.8e-81;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFDPKRLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPPGHFDPKRLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOQAERGVVSIKVCANRYLAMKEDGRLLASKCVTDCFFPERLESNNVNTYRSRY 120  
DB 61 KLOQAERGVVSIKVCANRYLAMKEDGRLLASKCVTDCFFPERLESNNVNTYRSRY 120  
QY 121 SSWVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 10

AAR40159 standard; peptide; 155 AA.

AC AAR40159;

DT 07-FEB-1994 (first entry)

DE Human bFGF peptide fragment #1.

KM Human; fibronectin; FN; fibroblast cell growth factor; FGF;

KW fusion; cell adhesion; cell growth; anti-aging; cosmetics;

KM wound healing; surgery.

OS Homo sapiens.

PN JP05178897-A.

XX 20-JUL-1993.

XX 05-MAR-1992; 92JP-0083220.

XX 14-OCT-1991; 91JP-0291959.

XX (TAKI) TAKARA SHUZO CO LTD.

XX WPI; 1993-261656/33.

DR N-PSDB; AAQ46943.

XX Synthetic functional polypeptide to promote wound healing, etc. -

PT growth factor polypeptide, opt. linked by spacer

PS Disclosure; Page 7; 13pp; Japanese.

XX The sequences given in AAR40158-63 represent human fibronectin (FN)

CC and fibroblast cell growth factor (FGF) fragments which were used in

CC the production of fusion polypeptides which are able to stimulate

CC cell adhesion and cell growth. These fusion peptides may be used

CC for anti-aging cosmetics and in wound healing after surgery.

XX Sequence 155 AA;

QY Query Match 98.7%; Score 817; DB 14; Length 155;

Best Local Similarity 98.7%; Pred. No. 1.8e-81;

Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFDPKRLYCKNGGFRLRHPDGRVDGVREKSDPHI 60

DB 1 MAAGSITTLPALPEDGSGAFPPGHFDPKRLYCKNGGFRLRHPDGRVDGVREKSDPHI 60

QY 61 KLOQAERGVVSIKVCANRYLAMKEDGRLLASKCVTDCFFPERLESNNVNTYRSRY 120

DB 61 KLOQAERGVVSIKVCANRYLAMKEDGRLLASKCVTDCFFPERLESNNVNTYRSRY 120

QY 121 SSWVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

DB 121 TSWVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 11

AAR80777 standard; Protein; 155 AA.

AC AAR80777;

DT 13-MAY-1996 (first entry)

DE Fibroblast growth factor 2, FGF-2.

KM Conjugate; fibroblast growth factor; FGF; cytotoxin; asporin; eye;

KW cell proliferation; regulation; pterygia; corneal clouding; cancer;

XX psoriasis; rheumatoid arthritis.

OS Homo sapiens.

PN W09524928-A2.

XX 21-SEP-1995.

XX 15-MAR-1995; 95MO-US03448.

XX 15-MAR-1994; 94US-0213447.

XX 15-MAR-1994; 94US-0213446.

XX (PRIZ-) PRIZM PHARM INC.

XX Baird JA, Houston LL, Nova MP, Sosnowski BA;

XX WPI; 1995-336820/43.

XX New conjugates of growth factor receptor ligand and targeted agent

PT - partic. DNA or cytotoxin, used to control cell proliferation in

PT the eye, e.g. to prevent growth of pterygia and corneal clouding

XX Claim 33; Page 141; 204pp; English.

XX AAR80776-84 are fibroblast growth factors (FGF) FGF-1 to FGF-9

CC respectively. DNA encoding these fibroblast growth factors can be

CC used to create an FGF/saporin fusion protein. DNA encoding such fusion

CC proteins are useful for targeting saporin (a cytotoxin) to a cell

CC carrying the FGF receptor. Targeted agents (TA) other than saporin

CC which may be used include in partic. DNA encoding a therapeutic protein,

CC antisense DNA or other cytotoxic agent. The linker sequence within the

CC fusion protein may increase serum stability or intracellular

CC availability of the TA. The conjugates of the invention are used to

CC inhibit cell proliferation in cells carrying the particular growth

CC factor receptor; also when TA is DNA it can be used to deliver this

CC to cells (for gene therapy). A specific application is to prevent

CC keratinocytes in the anterior eye after surgery, partic. to prevent

CC recurrence of pterygia after surgical removal, closure of

CC trebleclectomy after glaucoma surgery and corneal clouding after

CC excimer laser treatment. Other conditions which may be treated include

CC tumours, restenosis, psoriasis, Dupuytren's contracture, diabetic

CC complications, Kaposi's sarcoma and rheumatoid arthritis.

XX Sequence 155 AA;

QY Query Match 98.7%; Score 817; DB 15; Length 155;

Best Local Similarity 98.7%; Pred. No. 1.8e-81;

Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 DB 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 QY 121 SSMYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 12

AAR70204  
 ID AAR70204 standard; Protein; 155 AA.

AC AAR70204;

DT 21-SEP-1995 (first entry)

DE Human bFGF.

XX Basic fibroblast growth factor; bFGF; blood-brain barrier;

KW neuronal precursor cell; neurological agent.

XX Homo sapiens.

OS W09507092-A.

XX 16-MAR-1995.

XX 11-AUG-1994; 94WO-US09155.

XX 10-SEP-1993; 93US-0118822.

XX 22-DEC-1993; 93US-0171297.

XX (UYNE-) UNIV NEW JERSEY.

XX Black IB, Dicloco-Bloom E;

XX WPI; 1995-123234/16.

XX N-PSDB; AAQ83522.

XX New conjugates for crossing the blood brain barrier - comprising

XX a neurological agent linked to a transport factor comprising at

XX least a portion of a growth factor

XX Disclosure; Fig.1; 53pp; English.

XX Growth and/or proliferation of neuronal precursor cells in an animal

XX is obtained by admin. of a proliferation factor comprising at least

XX a portion of a growth factor, e.g. human basic fibroblast growth

XX factor, whose sequence is given in AAR70204 and gene in AAQ83522.

XX Sequence 155 AA;

Query Match 98.7%; Score 817; DB 16; Length 155;

Best Local Similarity 98.7%; Pred. No. 1.8e-81;

Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 DB 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 QY 121 SSMYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 13

AAR70823  
 ID AAR70823 standard; Protein; 155 AA.

XX AAR70823;

XX 01-SEP-1995 (first entry)

XX FGF-2.

XX FGF-2; fibroblast growth factor; cytotoxic conjugate; fusion protein;

XX saporin; cytostatic; tumor; diabetes; rheumatoid arthritis.

XX Homo sapiens.

XX W09503831-A.

XX 09-FEB-1995.

XX 27-JUL-1994; 94WO-US08511.

XX 02-AUG-1993; 93US-0099924.

XX 29-OCT-1993; 93US-0145829.

XX (PRIZ-) PRIZM PHARM INC.

XX (WHIT-) WHITTIER INST DIABETES & ENDOCRINOLOGY.

XX Baird AJ, Lappl DA, Sosnowski BA;

XX WPI; 1995-082038/11.

XX New monogenous preparations of cytotoxic conjugates and DNA -

XX contain fibroblast growth factors and cytotoxic agents for

XX treating FGF conditions such as tumours, diabetes and rheumatoid

XX arthritis.

XX Disclosure; Page 109-110; 128pp; English.

XX Novel fusion proteins comprise FGF linked to saporin. FGF-1 to -9

XX may be used, pref. mutants in which at least 1 Cys residue is

XX replaced by conservative Ser substitutions. The fusion proteins

XX are potent cycloidal agents to cells bearing the FGF receptor.

XX Sequence 155 AA;

Query Match 98.7%; Score 817; DB 16; Length 155;

Best Local Similarity 98.7%; Pred. No. 1.8e-81;

Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 DB 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 QY 121 SSMYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 14

AAW33338  
 ID AAW33338 standard; Protein; 155 AA.

XX AAW33338;

XX 23-FEB-1998 (first entry)

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLKYNKGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 DB 61 KLQLOAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 QY 121 SSMYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

DE Human fibronectin amino-terminal oligopeptide.  
 XX Amino-terminal; human fibronectin; target cell;  
 KM transfection; retroviral vector; gene therapy; cancer;  
 XX viral disease; acquired immunodeficiency syndrome; AIDS.  
 OS Homo sapiens.  
 XX MO9718318-A1.  
 XX  
 PD 22-MAY-1997.  
 XX  
 PF 07-NOV-1996; 96WO-0P03254.  
 XX  
 PR 08-MAR-1996; 96JP-0051847.  
 PR 13-NOV-1995; 95JP-0294382.  
 XX (TAKI ) TAKARA SHUZO CO LTD.  
 PA Asada K, Hashino K, Kato I, Koyama N, Uemori T;  
 PI Ueno T;  
 XX  
 DR WPI, 1997-289294/26.  
 XX  
 PT Method for increasing efficacy of gene transfer to target cell using  
 PT retrovirus - by infection of the target cell in the presence of a  
 PT substance which binds to the virus and a substance which binds to  
 PT the target cell  
 XX  
 PS Claim 4; Pages 93-94; 194pp; Japanese.  
 XX  
 CC The present sequence is a human fibronectin amino-terminal  
 CC oligopeptide, which was used in the development of a novel method  
 CC for increasing the efficiency of gene introduction into a target  
 CC cell using a retroviral vector. The method comprises carrying out  
 CC viral infection of the target cell in the presence of a retrovirus  
 CC and target cell binding substance or substances. The method can be  
 CC used to effectively introduce genes into target cells for the gene  
 CC therapy of cancer and viral diseases, e.g. AIDS.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 98.7%; Score 817; DB 18; Length 155;  
 Best Local Similarity 98.7%; Pred. No. 1.8e-81;  
 Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 MAAGSITTLPALPEDGSGAAPPGHFDPKRLCKNGGFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAAPPGHFDPKRLCKNGGFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOQAERGVVISIKGYCANRYLLAMKEDGRLASKCVTDECFPERLESNNNTYRSRKY 120  
 DB 61 KLOQAERGVVISIKGYCANRYLLAMKEDGRLASKCVTDECFPERLESNNNTYRSRKY 120  
 QY 121 SSWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
 RESULT 15  
 ID AAM19595 standard; Protein; 155 AA.  
 XX  
 AC AAM19595;  
 XX  
 DT 18-SEP-1997 (first entry)  
 XX  
 DE Biologically active recombinant basic fibroblast growth factor.  
 XX  
 KM FGF; fibroblast growth factor; basic; acidic; wound healing;  
 KM neurodegenerative disease; Parkinson's; Alzheimer's disease;  
 KM bone fracture; biologically active; embolism.

OS Homo sapiens.  
 XX  
 XX Key Location/Qualifiers  
 FT Peptide 1..9  
 FT Protein /label= sig\_peptide  
 FT 10..155  
 FT /label= mac\_protein  
 XX  
 PN US5604293-A.  
 XX  
 PD 18-FEB-1997.  
 XX  
 PF 12-SEP-1985; 85US-0775521.  
 XX  
 PR 15-MAY-1987; 87US-0050706.  
 PR 12-SEP-1985; 85US-0775521.  
 PR 16-DEC-1985; 85US-0809163.  
 PR 30-MAY-1986; 86US-0869382.  
 PR 30-MAR-1992; 92US-0860688.  
 PR 01-APR-1994; 94US-0221462.  
 XX  
 PA (SCIO-) SCIOS INC.  
 XX  
 PI Abraham JA, Fiddes JC;  
 XX  
 DR WPI, 1997-234676/21.  
 DR N-PSDB; AAT71231.  
 XX  
 PT New high purity, recombinant human basic fibroblast growth factor -  
 PT for promoting wound healing and treating neurodegenerative  
 PT diseases, suitable for production on large scale  
 XX  
 PS Claim 2; Fig 4; 34pp; English.  
 XX  
 CC AAM19595 is a biologically active recombinant human basic fibroblast  
 CC growth factor (bFGF). The protein is free from all infectious  
 CC impurities, substances that normally accompany it and from  
 CC post-translational modification of Cys residues of native human bFGF.  
 CC Recombinant bFGF is used to promote healing of wounds, bone fractures,  
 CC damaged myocardial tissue etc. and, since it increases neuronal survival  
 CC and promotes neurite outgrowth, may also be used in treatment of  
 CC neurological disorders such as Alzheimer's and Parkinson's diseases. bFGF  
 CC may also be used for detection of specific inhibitors, for treatment of  
 CC cell cultures in vitro before transplant and for inducing release of  
 CC tissue plasminogen activator or collagenase, e.g. for treatment of a  
 CC chronic tendency to form embolism. Recombinant bFGF can be produced on a  
 CC large scale.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 98.7%; Score 817; DB 18; Length 155;  
 Best Local Similarity 98.7%; Pred. No. 1.8e-81;  
 Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 MAAGSITTLPALPEDGSGAAPPGHFDPKRLCKNGGFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAAPPGHFDPKRLCKNGGFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOQAERGVVISIKGYCANRYLLAMKEDGRLASKCVTDECFPERLESNNNTYRSRKY 120  
 DB 61 KLOQAERGVVISIKGYCANRYLLAMKEDGRLASKCVTDECFPERLESNNNTYRSRKY 120  
 QY 121 SSWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
 Search completed: December 16, 2002, 17:55:35  
 Job time : 34 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:55:41 ; Search time 11.5 Seconds

(without alignments)  
396.570 Million cell updates/sec

Title: US-09-886-856-6

Perfect score: 828

Sequence: 1 MAAGSITTLPALPEDGSGA.....GPKTGPQKALFLPMASKS 155

Scoring table: BLOSUM62

Gapop 10.0, Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:\*  
1: /cg2\_6/prodata/1/1aa/5A\_COMB.pep:\*  
2: /cg2\_6/prodata/1/1aa/5B\_COMB.pep:\*  
3: /cg2\_6/prodata/1/1aa/6A\_COMB.pep:\*  
4: /cg2\_6/prodata/1/1aa/6B\_COMB.pep:\*  
5: /cg2\_6/prodata/1/1aa/PCTUS\_COMB.pep:\*  
6: /cg2\_6/prodata/1/1aa/backfill6el.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	828	100.0	155	5 PCT-US91-02186-4	Sequence 4, Appl1
2	828	100.0	155	5514566-6	Patent No. 5514566
3	817	98.7	155	1 US-07-959-369-6	Sequence 6, Appl1
4	817	98.7	155	1 US-07-842-177A-1	Sequence 1, Appl1
5	817	98.7	155	1 US-08-439-725A-10	Sequence 10, Appl1
6	817	98.7	155	1 US-08-325-632-1	Sequence 1, Appl1
7	817	98.7	155	1 US-08-462-169B-10	Sequence 10, Appl1
8	817	98.7	155	2 US-08-867-471-10	Sequence 10, Appl1
9	817	98.7	155	2 US-08-438-439C-14	Sequence 14, Appl1
10	817	98.7	155	2 US-08-951-822-28	Sequence 28, Appl1
11	817	98.7	155	3 US-09-103-079-10	Sequence 10, Appl1
12	817	98.7	155	3 US-08-705-445-6	Sequence 6, Appl1
13	817	98.7	155	3 US-08-897-924A-25	Sequence 25, Appl1
14	817	98.7	155	3 US-08-718-904-11	Sequence 11, Appl1
15	817	98.7	155	3 US-09-023-082A-17	Sequence 17, Appl1
16	817	98.7	155	3 US-09-030-613-3	Sequence 3, Appl1
17	817	98.7	155	4 US-09-098-628-2	Sequence 2, Appl1
18	817	98.7	155	4 US-09-451-905-3	Sequence 3, Appl1
19	817	98.7	155	4 US-09-368-951-28	Sequence 28, Appl1
20	817	98.7	155	4 US-09-366-009-3	Sequence 3, Appl1
21	817	98.7	155	4 US-09-619-213B-99	Sequence 99, Appl1
22	817	98.7	155	5 PCT-US91-02186-2	Sequence 2, Appl1
23	817	98.7	155	5514566-8	Patent No. 5514566
24	817	98.7	158	2 US-08-599-895-3	Sequence 3, Appl1
25	817	98.7	158	3 US-09-211-290-3	Sequence 3, Appl1
26	817	98.7	158	3 US-09-322-676-3	Sequence 3, Appl1
27	817	98.7	158	4 US-09-220-077C-2	Sequence 2, Appl1

28	817	98.7	158	4 US-09-466-036A-3	Sequence 3, Appl1
29	817	98.7	210	1 US-08-464-590A-14	Sequence 14, Appl1
30	817	98.7	210	2 US-08-207-412B-9	Sequence 9, Appl1
31	817	98.7	210	3 US-09-093-585-14	Sequence 14, Appl1
32	817	98.7	432	1 US-07-959-369-8	Sequence 8, Appl1
33	817	98.7	432	2 US-08-836-854-20	Sequence 20, Appl1
34	817	98.7	432	4 US-09-366-009-4	Sequence 4, Appl1
35	814	98.3	155	1 US-07-959-369-7	Sequence 7, Appl1
36	814	98.3	432	1 US-07-959-369-9	Sequence 9, Appl1
37	812	98.1	154	2 US-08-438-439C-24	Sequence 24, Appl1
38	812	98.1	154	3 US-08-325-186-1	Sequence 1, Appl1
39	812	98.1	235	1 US-08-078-683A-39	Sequence 39, Appl1
40	811	97.9	457	4 US-09-366-009-5	Sequence 5, Appl1
41	808	97.6	153	3 US-08-325-186-2	Sequence 2, Appl1
42	808	97.6	154	5 PCT-US91-02186-6	Sequence 6, Appl1
43	808	97.6	155	1 US-08-023-757-2	Sequence 2, Appl1
44	808	97.6	155	1 US-08-177-502-2	Sequence 2, Appl1
45	808	97.6	155	4 US-09-240-952-4	Sequence 4, Appl1

## ALIGNMENTS

RESULT 1  
PCT-US91-02186-4  
Sequence 4, Application PC/TUS9102186  
GENERAL INFORMATION:  
APPLICANT: California Biotechnology Inc.  
INVENTOR: Thompson, Stewart A.  
APPLICANT: Abraham, Judith A.  
TITLE OF INVENTION: High Level Expression of Basic  
TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous  
NUMBER OF SEQUENCES: 26  
CORRESPONDENCE ADDRESSES:  
ADDRESSEE: Irell & Manella  
STREET: 545 Middlefield Road, Suite 200  
CITY: Menlo Park  
STATE: California  
COUNTRY: USA  
ZIP: 94025-3471  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: PCT/US91/02186  
FILING DATE: 19910702  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Murashige, Kate H.  
REGISTRATION NUMBER: 29,959  
REFERENCE/DOCKET NUMBER: 1900-0275.41  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 415-327-7250  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
PCT-US91-02186-4  
Query Match 100.0%; Score 828; DB 5; Length 155;  
Best Local Similarity 100.0%; Pred. No. 4.8e-88;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
QY 1 MAAGSITTLPALPEDGSGAFPGRKPKRLVCKXGQFFLRTHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPGRKPKRLVCKXGQFFLRTHPDGRVGVREKSDPHI 60  
QY 61 KLOLOAEERGVSISIKGVCANRYLAKMKEDGRLLASKCVTDECFEERLESNNYNTYSRKY 120

Db 61 KLOLQAEERGVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
Db 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155

## RESULT 2

5514566-6  
Patent No. 5514566  
APPLICANT: FIDES, JOHN C.; ABRAHAM, JUDITH A.  
TITLE OF INVENTION: METHODS OF PRODUCING RECOMBINANT  
FIBROBLASTS GROWTH FACTORS  
NUMBER OF SEQUENCES: 21  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/417,022  
FILING DATE: 05-APR-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 809,163  
FILING DATE: 16-DEC-1985  
APPLICATION NUMBER: 775,521  
FILING DATE: 12-SEP-1985  
SEQ ID NO: 6:  
LENGTH: 155  
5514566-6

Query Match 100.0%; Score 828; DB 6; Length 155;  
Best Local Similarity 100.0%; Pred. No. 4,8e-86;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
Db 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOLQAEERGVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
Db 61 KLOLQAEERGVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
Db 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155

## RESULT 3

US-07-959-369-6  
Sequence 6, Application US/07959369  
Patent No. 5302701  
GENERAL INFORMATION:  
APPLICANT: Hidetaka HASHI et al.  
TITLE OF INVENTION: No. 5302701el Functional Polypeptide  
NUMBER OF SEQUENCES: 23  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Wenderoth, Lind & Ponack  
STREET: 805 Fifteenth Street, N.W., #700  
City: Washington  
STATE: D.C.  
COUNTRY: U.S.A.  
ZIP: 20005  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette, 5.25 inch, 500 KB  
COMPUTER: IBM Compatible  
OPERATING SYSTEM: MS-DOS  
SOFTWARE: Wordperfect 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/959,369  
FILING DATE: 19921013  
CLASSIFICATION: 530  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Warren M. Cheek, Jr.

REGISTRATION NUMBER: 33,367  
REFERENCE/DOCKET NUMBER:  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-371-8850  
TELEFAX:  
TELEX:

## INFORMATION FOR SEQ ID NO: 6:

SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: polypeptide  
HYPOTHETICAL:  
ANTI-SENSE:  
FRAGMENT TYPE:  
ORIGINAL SOURCE:  
ORGANISM:

STRAIN:  
INDIVIDUAL ISOLATE:  
DEVELOPMENTAL STAGE:  
HAPLOTYPE:  
TISSUE TYPE:

CELL TYPE:  
CELL LINE:  
ORGANELLE:

## IMMEDIATE SOURCE:

LIBRARY:  
CLONE:  
POSITION IN GENOME:  
CHROMOSOME/SEGMENT:  
MAP POSITION:

## FEATURES:

NAME/KEY:  
LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION:  
PUBLICATION INFORMATION:  
AUTHORS:  
TITLE:  
JOURNAL:  
VOLUME:  
ISSUE:  
PAGES:  
DATE:

DOCUMENT NUMBER:  
FILING DATE:  
PUBLICATION DATE:  
RELEVANT RESIDUES IN SEQ ID NO:  
US-07-959-369-6

Query Match 98.7%; Score 817; DB 1; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
Db 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOLQAEERGVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
Db 61 KLOLQAEERGVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
Db 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155

## RESULT 4

US-07-842-177A-1  
Sequence 1, Application US/07842177A  
Patent No. 5348863

GENERAL INFORMATION:  
APPLICANT: MONSIEUR, PIERRE  
APPLICANT: PAUL, FRANCOIS  
APPLICANT: BETHEDE, DIDIER  
APPLICANT: SAMIENTOS, PAOLO  
TITLE OF INVENTION: PROCESS FOR THE ENZYMATIC PREPARATION OF  
TITLE OF INVENTION: BASIC FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 6  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCLELLAND, MAIER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Suite 400  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/842,177A  
FILING DATE: 19920402  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: GB 9017008.5  
FILING DATE: 02-AUG-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: OBLON, NO. 534863man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-263-0 PCT  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703) 521-4500  
TELEFAX: (703) 486-2347  
TELEX: 248855 OBLAT UR  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-07-842-177A-1

Query Match 98.7%; Score 817; DB 1; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87; 1; Indels 0; Gaps 0;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGSGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITLPLPEDGSGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60

QY 61 KLOLOAERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYRSRY 120  
DB 61 KLOLOAERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYRSRY 120

QY 121 SSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155

RESULT 5  
US-08-439-725A-10  
Sequence 10, Application US/08439725A  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE  
NUMBER OF SEQUENCES: 15

CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent in Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/439,725A  
FILING DATE: 12-MAY-1995  
CLASSIFICATION: 424  
ATTORNEY/AGENT INFORMATION:  
NAME: Haile, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/047001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 617/678-5099  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-439-725A-10

Query Match 98.7%; Score 817; DB 1; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87; 1; Indels 0; Gaps 0;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGSGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITLPLPEDGSGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60

QY 61 KLOLOAERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYRSRY 120  
DB 61 KLOLOAERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYRSRY 120

QY 121 SSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155

RESULT 6  
US-08-325-632-1  
Sequence 1, Application US/08325632  
Patent No. 5714458  
GENERAL INFORMATION:  
APPLICANT: ADAMI, MARCO  
APPLICANT: DALIA CASA, ROSANNA  
APPLICANT: GAMBINI, LUCIANO  
APPLICANT: MAGRINI, ROBERTO  
APPLICANT: MARIANI, GIOVANNI  
APPLICANT: PERRONE, STABILE  
TITLE OF INVENTION: STABLE PHARMACEUTICAL COMPOSITIONS  
TITLE OF INVENTION: CONTAINING A FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 1  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCLELLAND, MAIER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Fourth Floor  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk



COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/325,632  
FILING DATE:  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/07/966,077  
FILING DATE:  
APPLICATION NUMBER: GB 9015524.7  
FILING DATE: 18-JUL-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: Oblon, No. 5714458man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-288-0 PCT  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703)412-3000  
TELEFAX: (703)413-2220  
TELEX: 248855 OPAT UR  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-325-632-1

Query Match 98.7%; Score 817; DB 1; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFPLRIHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFPLRIHPDGRVGVREKSDPHI 60  
QY 61 KLOLAEEGVVSIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNNTYRSRY 120  
DB 61 KLOLAEEGVVSIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNNTYRSRY 120  
QY 121 SSMYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 7  
US-08-462-169B-10  
Sequence 10, Application US/08462169B  
Patent No. 5773252  
GENERAL INFORMATION:  
APPLICANT: John Greene and Craig A. Rosen  
TITLE OF INVENTION: Fibroblast Growth Factor-15  
NUMBER OF SEQUENCES: 32  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,  
STREET: 6 BECKER FARM ROAD  
CITY: ROSELAND  
STATE: NEW JERSEY  
COUNTRY: USA  
ZIP: 07068  
COMPUTER READABLE FORM:  
MEDIUM TYPE: 3.5 INCH DISKETTE  
COMPUTER: IBM PS/2  
OPERATING SYSTEM: MS-DOS  
SOFTWARE: WORD PERFECT 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/462,169B  
FILING DATE: 05 JUN 95  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: MULLINS, J.G.

REGISTRATION NUMBER: 33,073  
REFERENCE/DOCKET NUMBER: 325800-441 (PF203)  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 201-994-1700  
TELEFAX: 201-994-1744  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 AMINO ACIDS  
TYPE: AMINO ACID  
STRANDEDNESS:  
TOPOLOGY: LINEAR  
MOLECULE TYPE: PROTEIN  
US-08-462-169B-10

Query Match 98.7%; Score 817; DB 1; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFPLRIHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFPLRIHPDGRVGVREKSDPHI 60  
QY 61 KLOLAEEGVVSIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNNTYRSRY 120  
DB 61 KLOLAEEGVVSIKVCANRYLAMKEDGRLLASCVTDECFEERLESNNNTYRSRY 120  
QY 121 SSMYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 8  
US-08-867-471-10  
Sequence 10, Application US/08867471  
Patent No. 5872226  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: MacKe, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/867,471  
FILING DATE: 02-JUN-1997  
CLASSIFICATION: 536  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/439,725  
FILING DATE: 12-MAY-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Haile, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/047001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 617/678-5099  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant

TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-867-471-10

Query Match 98.7%; Score 817; DB 2; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPLALPEDGSGAFPPGHFKDPKRLKCKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPLALPEDGSGAFPPGHFKDPKRLKCKNGGFFLRHPDGRVGVREKSDPHI 60  
QY 61 KLOQAEERGVSVISKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
DB 61 KLOQAEERGVSVISKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 9

US-08-438-439C-14  
Sequence 14, Application US/08438439C  
Patent No. 5875967  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Phillip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
NUMBER OF SEQUENCES: 25  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
OPERATING SYSTEM: IBM PC compatible  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/438,439C  
FILING DATE: May 12, 1995  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Hallie, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/046001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-5099  
INFORMATION FOR SEQ ID NO: 14:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-438-439C-14

Query Match 98.7%; Score 817; DB 2; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPLALPEDGSGAFPPGHFKDPKRLKCKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPLALPEDGSGAFPPGHFKDPKRLKCKNGGFFLRHPDGRVGVREKSDPHI 60  
QY 61 KLOQAEERGVSVISKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120

DB 61 KLOQAEERGVSVISKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120

QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 10

US-08-951-822-28  
Sequence 28, Application US/08951822A  
Patent No. 5989866  
GENERAL INFORMATION:  
APPLICANT: Delsher, Theresa A.  
APPLICANT: Conklin, Darrell C.  
APPLICANT: Raymond, Fenella  
APPLICANT: Bukowski, Thomas R.  
APPLICANT: Holderman, Susan D.  
APPLICANT: Hansen, Birgit  
APPLICANT: Shepard, Paul O.  
TITLE OF INVENTION: NOVEL RGF HOMOLOGS  
FILE REFERENCE: 96-20  
CURRENT APPLICATION NUMBER: US/08/951,822A  
CURRENT FILING DATE: 1997-10-16  
NUMBER OF SEQ ID NOS: 36  
SOFTWARE: FastSeq for Windows Version 3.10  
SEQ ID NO 28  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-08-951-822-28

Query Match 98.7%; Score 817; DB 2; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPLALPEDGSGAFPPGHFKDPKRLKCKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPLALPEDGSGAFPPGHFKDPKRLKCKNGGFFLRHPDGRVGVREKSDPHI 60  
QY 61 KLOQAEERGVSVISKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
DB 61 KLOQAEERGVSVISKGCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 11  
US-09-103-079-10  
Sequence 10, Application US/09103079A  
Patent No. 6013477  
GENERAL INFORMATION:  
APPLICANT: Greene, John M.  
APPLICANT: Rosen, Craig A.  
TITLE OF INVENTION: Fibroblast Growth Factor 15  
FILE REFERENCE: PF203D1  
CURRENT APPLICATION NUMBER: US/09/103,079A  
CURRENT FILING DATE: 1998-06-23  
EARLIER APPLICATION NUMBER: 08/462,169  
EARLIER FILING DATE: 1995-06-05  
NUMBER OF SEQ ID NOS: 32  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 10  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-103-079-10

Query Match 98.7%; Score 817; DB 3; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
DB 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPOKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 12

US-08-705-245-6  
Sequence 6, Application US/08705245  
Patent No. 6020189  
GENERAL INFORMATION:  
APPLICANT: Nathans et al., Jeremy  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
FACTORS (FHBs) AND METHODS OF USE  
NUMBER OF SEQUENCES: 37  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/705.245  
FILING DATE: 30-AUG-1996  
CLASSIFICATION: 530  
ATTORNEY/AGENT INFORMATION:  
NAME: Wetherell, Jr., John R.  
REGISTRATION NUMBER: 31,678  
REFERENCE/DOCKET NUMBER: 07265/094001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-50999  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-705-245-6

Query Match 98.7%; Score 817; DB 3; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87; 1; Indels 0; Gaps 0;  
Matches 153; Conservative 1; Mismatches 1;

QY 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
DB 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPOKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 13

US-08-897-924A-25  
Sequence 25, Application US/08897924A  
Patent No. 6028058  
GENERAL INFORMATION:  
APPLICANT: Flockiewicz, Robert Z.  
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR REGULATING  
NUCLEAR TRAFFICKING OF PROTEINS  
NUMBER OF SEQUENCES: 28  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: SEED and BERRY LLP  
STREET: 6300 Columbia Center, 701 Fifth Avenue  
CITY: Seattle  
STATE: Washington  
COUNTRY: USA  
ZIP: 98104  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/897.924A  
FILING DATE: 21-JUL-1997  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Makl, David J.  
REGISTRATION NUMBER: 31,392  
REFERENCE/DOCKET NUMBER: 200124.403  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (206) 622-4900  
TELEFAX: (206) 682-6031  
INFORMATION FOR SEQ ID NO: 25:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-897-924A-25

Query Match 98.7%; Score 817; DB 3; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87; 1; Indels 0; Gaps 0;  
Matches 153; Conservative 1; Mismatches 1;

QY 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
DB 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPOKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 14  
US-08-718-904-11  
Sequence 11, Application US/08718904  
Patent No. 6037329  
GENERAL INFORMATION:  
APPLICANT: Baird, J. Andrew  
APPLICANT: Chandler, Lois Ann  
APPLICANT: Sosnowski, Barbara A.  
TITLE OF INVENTION: COMPOSITIONS CONTAINING NUCLEIC ACIDS AND LIGANDS FOR THERAPE  
NUMBER OF SEQUENCES: 128  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: SEED and BERRY LLP  
STREET: 6300 Columbia Center, 701 Fifth Avenue  
CITY: Seattle  
STATE: Washington  
COUNTRY: USA  
ZIP: 98104-7092

QY 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
DB 61 KLQLOAEBRGVVSIGVCANRYLAMKEDGRLLASKCVTDECFEFLRLSNNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPOKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/718,904  
FILING DATE: 24-SEP-1996  
CLASSIFICATION: 424  
ATTORNEY/AGENT INFORMATION:  
NAME: No. 6037329,enburg Ph.D., Carol  
REGISTRATION NUMBER: 39,317  
REFERENCE/DOCKET NUMBER: 760100.415c1  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (206) 622-4900  
TELEFAX: (206) 682-6031  
INFORMATION FOR SEQ ID NO: 11:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: unknown  
MOLECULE TYPE: peptide  
FEATURE:  
OTHER INFORMATION: /note="FGF-2"  
US-08-718-904-11

Query Match 98.7%; Score 817; DB 3; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87; 1; Indels 0; Gaps 0;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPBDGGGAPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPBDGGGAPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHI 60

QY 61 KLQLOAERGVVSIKGVANRYLAKKEDGRLLASKCVTDECFEERLESNNYNTYRSKY 120  
DB 61 KLQLOAERGVVSIKGVANRYLAKKEDGRLLASKCVTDECFEERLESNNYNTYRSKY 120

QY 121 SSWYVALKRTGYKLGKPTGPGQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGYKLGKPTGPGQKAILFLPMSAKS 155

RESULT 15  
US-09-023-082A-17  
Sequence 17, Application US/09023082A  
Patent No. 6077692  
GENERAL INFORMATION:  
APPLICANT: RUBEN, STEVEN M.  
APPLICANT: JIMENEZ, PABLO  
APPLICANT: DUAN, D. ROXANNE  
APPLICANT: RAMPY, MARK A.  
APPLICANT: MENDRICK, DONNA  
APPLICANT: ZHANG, JUN  
APPLICANT: NI, JIAN  
APPLICANT: MOORE, PAUL A.  
APPLICANT: COLEMAN, TIMOTHY A.  
APPLICANT: GRUBER, JOACHIM R.  
APPLICANT: DILLON, PATRICK J.  
APPLICANT: GENTZ, REINER L.  
TITLE OF INVENTION: KERATINOCYTE GROWTH FACTOR-2  
NUMBER OF SEQUENCES: 148  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: STERN, KESSLER, GOLDSTEIN & FOX, P.L.L.C.  
STREET: 1100 NEW YORK AVE, NW, SUITE 600  
CITY: WASHINGTON  
STATE: DC  
COUNTRY: USA  
ZIP: 20005-3934  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/023,082A  
FILING DATE: 13-FEB-1998  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: PCT/US95/01790  
FILING DATE: 14-FEB-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/461,195  
FILING DATE: 05-JUN-1995  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/023,852  
FILING DATE: 13-AUG-1996  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/039,045  
FILING DATE: 28-FEB-1997  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/862,432  
FILING DATE: 23-MAY-1997  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/910,875  
FILING DATE: 13-AUG-1997  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 60/055,561  
FILING DATE: 13-AUG-1997  
ATTORNEY/AGENT INFORMATION:  
NAME: STEFFE, ERIC K.  
REGISTRATION NUMBER: 36,688  
REFERENCE/DOCKET NUMBER: 1488.0360008/EKS  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-371-2600  
FILING DATE: 202-371-2540  
INFORMATION FOR SEQ ID NO: 17:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: not relevant  
MOLECULE TYPE: protein  
US-09-023-082A-17

Query Match 98.7%; Score 817; DB 3; Length 155;  
Best Local Similarity 98.7%; Pred. No. 9e-87; 1; Indels 0; Gaps 0;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPBDGGGAPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPBDGGGAPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVRKSDPHI 60

QY 61 KLQLOAERGVVSIKGVANRYLAKKEDGRLLASKCVTDECFEERLESNNYNTYRSKY 120  
DB 61 KLQLOAERGVVSIKGVANRYLAKKEDGRLLASKCVTDECFEERLESNNYNTYRSKY 120

QY 121 SSWYVALKRTGYKLGKPTGPGQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGYKLGKPTGPGQKAILFLPMSAKS 155

Search completed: December 16, 2002, 17:58:24  
Job time: 12.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:53:40 ; Search time 7.5 Seconds  
(without alignments)  
344.355 Million cell updates/sec

Title: 'US-09-886-856-6

Perfect score: 828  
Sequence: 1 MAAGSTTLPALPEDGSGA.....GPKTGQAIFLPMASAKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 105981 seqs, 1666342 residues

Total number of hits satisfying chosen parameters: 105981

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-Processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database: Published Applications AA:\*

1: /cgn2\_6/prodata/1/pubpaa/US08\_NEW\_PUB pep:\*\n2: /cgn2\_6/prodata/1/pubpaa/PCT\_NEW\_PUB pep:\*\n3: /cgn2\_6/prodata/1/pubpaa/US06\_NEW\_PUB pep:\*\n4: /cgn2\_6/prodata/1/pubpaa/US07\_PUBCOMB pep:\*\n5: /cgn2\_6/prodata/1/pubpaa/US07\_PUBCOMB pep:\*\n6: /cgn2\_6/prodata/1/pubpaa/US07\_PUBCOMB pep:\*\n7: /cgn2\_6/prodata/1/pubpaa/PCTUS\_PUBCOMB pep:\*\n8: /cgn2\_6/prodata/1/pubpaa/US08\_PUBCOMB pep:\*\n9: /cgn2\_6/prodata/1/pubpaa/US09\_NEW\_PUB pep:\*\n10: /cgn2\_6/prodata/1/pubpaa/US09\_PUBCOMB pep:\*\n11: /cgn2\_6/prodata/1/pubpaa/US10\_NEW\_PUB pep:\*\n12: /cgn2\_6/prodata/1/pubpaa/US10\_PUBCOMB pep:\*\n13: /cgn2\_6/prodata/1/pubpaa/US60\_NEW\_PUB pep:\*\n14: /cgn2\_6/prodata/1/pubpaa/US60\_PUBCOMB pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	828	100.0	155	10	US-09-802-365-6
2	828	100.0	155	10	US-09-886-856-6
3	817	98.7	155	10	US-09-822-485-5
4	817	98.7	155	10	US-09-802-365-8
5	817	98.7	155	10	US-09-251-263-10
6	817	98.7	155	10	US-09-425-021-10
7	817	98.7	155	10	US-09-886-856-8
8	817	98.7	155	10	US-09-749-728B-7
9	817	98.7	158	10	US-09-826-210-2
10	817	98.7	210	10	US-09-934-706-2
11	812	98.1	159	10	US-09-934-706-2
12	812	98.1	501	10	US-09-934-706-4
13	795	96.0	150	12	US-10-016-447-8
14	787	95.0	146	9	US-10-131-965-5
15	787	95.0	146	10	US-09-802-365-2
16	787	95.0	146	10	US-09-771-302-2
17	787	95.0	146	10	US-09-886-856-2
18	776	93.7	146	9	US-10-131-965-3
19	776	93.7	146	10	US-09-802-365-4

20	776	93.7	146	10	US-09-886-856-4	Sequence 4, Appli
21	711	85.9	134	9	US-09-901-938-24	Sequence 24, Appli
22	418.5	50.5	155	9	US-09-929-945-2	Sequence 2, Appli
23	418.5	50.5	155	10	US-09-294-663A-9	Sequence 9, Appli
24	418.5	50.5	155	10	US-09-902-773A-3	Sequence 3, Appli
25	418.5	50.5	155	10	US-09-251-263-9	Sequence 9, Appli
26	418.5	50.5	155	10	US-09-425-021-9	Sequence 9, Appli
27	418.5	50.5	155	10	US-09-929-918-2	Sequence 2, Appli
28	418.5	50.5	155	10	US-09-929-918-11	Sequence 11, Appli
29	413.5	49.9	154	9	US-09-929-945-8	Sequence 8, Appli
30	409.5	49.5	153	10	US-09-822-465-4	Sequence 4, Appli
31	397.5	48.0	149	12	US-10-016-447-9	Sequence 9, Appli
32	395	47.7	141	9	US-09-929-945-7	Sequence 7, Appli
33	395	47.7	141	10	US-09-929-918-7	Sequence 7, Appli
34	388	46.9	137	9	US-09-901-938-23	Sequence 23, Appli
35	379	45.8	140	9	US-10-131-965-1	Sequence 1, Appli
36	375	45.3	135	9	US-09-929-945-5	Sequence 5, Appli
37	375	45.3	135	9	US-09-929-918-5	Sequence 5, Appli
38	366	44.2	140	9	US-10-131-965-2	Sequence 2, Appli
39	356	43.0	158	12	US-10-016-447-18	Sequence 18, Appli
40	318	38.4	155	10	US-09-425-021-24	Sequence 24, Appli
41	254.5	30.7	206	10	US-09-251-263-13	Sequence 13, Appli
42	252.5	30.5	205	9	US-10-131-965-8	Sequence 8, Appli
43	252.5	30.5	206	10	US-09-822-485-7	Sequence 7, Appli
44	252.5	30.5	206	10	US-09-750-963-9	Sequence 9, Appli
45	252.5	30.5	206	10	US-09-902-773A-5	Sequence 5, Appli

## ALIGNMENTS

RESULT 1  
US-09-802-365-6  
Sequence 6, Application US/09802365  
Patent No. US2002003153A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
TREATMENT AND PREVENTION OF Erectile Dysfunction  
FILE REFERENCE: 1671.003  
CURRENT APPLICATION NUMBER: US/09/802,365  
CURRENT FILING DATE: 2001-03-09  
PRIOR FILING DATE: 2000-03-10  
PRIOR APPLICATION NUMBER: 60/188,480  
PRIOR FILING DATE: 2000-05-11  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 6  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Bos taurus  
US-09-802-365-6

Query Match 100.0%; Score 828; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1.9e-78;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSTTLPALPEDGSGAFPPGKDPKRLKCKNGFFLRIHPDGRVGVREKSDPHI 60  
1 MAAGSTTLPALPEDGSGAFPPGKDPKRLKCKNGFFLRIHPDGRVGVREKSDPHI 60  
Db 1 MAAGSTTLPALPEDGSGAFPPGKDPKRLKCKNGFFLRIHPDGRVGVREKSDPHI 60  
QY 61 KLGQAEERGVSIKVCANRYLAMKEDGRLASKCYTDCFFERLESNNVYTRSRXY 120  
61 KLGQAEERGVSIKVCANRYLAMKEDGRLASKCYTDCFFERLESNNVYTRSRXY 120  
Db 61 KLGQAEERGVSIKVCANRYLAMKEDGRLASKCYTDCFFERLESNNVYTRSRXY 120  
QY 121 SSWYALKRTGQYKLGPKTGQAIFLPMASAKS 155  
121 SSWYALKRTGQYKLGPKTGQAIFLPMASAKS 155  
Db 121 SSWYALKRTGQYKLGPKTGQAIFLPMASAKS 155  
RESULT 2  
US-09-886-856-6

Sequence 6, Application US/09886856  
Patent No. US20020115603A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
TREATMENT OF PERIPHERAL ARTERY DISEASE  
FILE REFERENCE: P16090.004  
CURRENT APPLICATION NUMBER: US/09/886,856  
CURRENT FILING DATE: 2001-06-21  
PRIOR APPLICATION NUMBER: 60/213,504  
PRIOR FILING DATE: 2000-06-22  
PRIOR APPLICATION NUMBER: 60/264,572  
PRIOR FILING DATE: 2000-01-26  
PRIOR APPLICATION NUMBER: 60/276,549  
PRIOR FILING DATE: 2001-03-16  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 6  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Bos taurus  
US-09-886-856-6

Query Match 100.0%; Score 828; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 1,9e-78;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVRKSDPHI 60

QY 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120  
DB 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120

QY 121 SSMYVALKRTGOYKLGPTGPGOKAILFLPMSAKS 155  
DB 121 SSMYVALKRTGOYKLGPTGPGOKAILFLPMSAKS 155

RESULT 3  
US-09-822-485-5  
Sequence 5, Application US/09822485  
Patent No. US20020001825A1  
GENERAL INFORMATION:  
APPLICANT: Itoh, No. US20020001825A1yuki  
TITLE OF INVENTION: No. US20020001825A1el Fibroblast Growth Factor-Like Polypeptides  
FILE REFERENCE: 08035.0001-01000  
CURRENT APPLICATION NUMBER: US/09/822,485  
CURRENT FILING DATE: 2001-04-02  
NUMBER OF SEQ ID NOS: 35  
SOFTWARE: PatentIn Ver. 2.0  
SEQ ID NO 5  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
PUBLICATION INFORMATION:  
JOURNAL: EMBO J.  
VOLUME: 5  
PAGES: 2523-2528  
DATE: 1986  
US-09-822-485-5

Query Match 98.7%; Score 817; DB 10; Length 155;  
Best Local Similarity 98.7%; Pred. No. 2.5e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVRKSDPHI 60

QY 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120  
DB 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120

DB 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120  
QY 121 SSMYVALKRTGOYKLGPTGPGOKAILFLPMSAKS 155  
DB 121 SSMYVALKRTGOYKLGPTGPGOKAILFLPMSAKS 155

RESULT 4  
US-09-802-365-8  
Sequence 8, Application US/09802365  
Patent No. US20020032153A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
TREATMENT OF ERECTILE DYSFUNCTION  
FILE REFERENCE: 1671.003  
CURRENT APPLICATION NUMBER: US/09/802,365  
CURRENT FILING DATE: 2001-03-09  
PRIOR APPLICATION NUMBER: 60/188,480  
PRIOR FILING DATE: 2000-03-10  
PRIOR APPLICATION NUMBER: 60/203,415  
PRIOR FILING DATE: 2000-05-11  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 8  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-802-365-8

Query Match 98.7%; Score 817; DB 10; Length 155;  
Best Local Similarity 98.7%; Pred. No. 2.5e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVRKSDPHI 60

QY 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120  
DB 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRY 120

QY 121 SSMYVALKRTGOYKLGPTGPGOKAILFLPMSAKS 155  
DB 121 SSMYVALKRTGOYKLGPTGPGOKAILFLPMSAKS 155

RESULT 5  
US-09-251-263-10  
Sequence 10, Application US/09251263  
Patent No. US20020052477A1  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
AND METHODS OF USE  
FILE REFERENCE: 07265/047003  
CURRENT APPLICATION NUMBER: US/09/251,263  
CURRENT FILING DATE: 1999-02-16  
EARLIER APPLICATION NUMBER: 08/867,471  
EARLIER FILING DATE: 1997-06-02  
EARLIER APPLICATION NUMBER: 08/439,725  
EARLIER FILING DATE: 1995-05-12  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 10  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-251-263-10

Query Match 98.7%; Score 817; DB 10; Length 155;

Best Local Similarity 98.7%; Pred. No. 2.5e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 6

US-09-425-021-10  
Sequence 10, Application US/09425021  
Patent No. US20020076748A1  
GENERAL INFORMATION:  
APPLICANT: Greene, John M.  
APPLICANT: Rosen, Craig A.  
TITLE OF INVENTION: Fibroblast Growth Factor 15  
FILE REFERENCE: PR203D1  
CURRENT FILING DATE: 1999-10-25  
EARLIER FILING DATE: 1999-10-25  
EARLIER FILING DATE: 09/103,079  
NUMBER OF SEQ ID NOS: 32  
SOFTWARE: Patent Ver. 2.0  
SEQ ID NO 10  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-425-021-10

Query Match 98.7%; Score 817; DB 10; Length 155;  
Best Local Similarity 98.7%; Pred. No. 2.5e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 7  
US-09-886-856-8

Sequence 8, Application US/09886856  
Patent No. US20020115603A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
TREATMENT OF PERIPHERAL ARTERY DISEASE  
FILE REFERENCE: P16090,004  
CURRENT FILING DATE: 2001-06-21  
CURRENT FILING DATE: 2001-06-21  
PRIOR FILING DATE: 2000-06-22  
PRIOR FILING DATE: 2000-06-22  
PRIOR FILING DATE: 2000-01-26  
PRIOR FILING DATE: 2000-01-26  
PRIOR FILING DATE: 2001-03-16  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0

SEQ ID NO 8  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-886-856-8

Query Match 98.7%; Score 817; DB 10; Length 155;  
Best Local Similarity 98.7%; Pred. No. 2.5e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 8

US-09-749-728B-7  
Sequence 7, Application US/09749728B  
Patent No. US20020142457A1  
GENERAL INFORMATION:  
APPLICANT: Umezawa, Akihito  
APPLICANT: Hata, Jun-ichi  
APPLICANT: Fukuda, Keiichi  
APPLICANT: Ogawa, Satoshi  
APPLICANT: Sakurada, Kazumiro  
APPLICANT: Gojo, Satoshi  
TITLE OF INVENTION: THE CELL HAVING THE POTENTIALITY OF DIFFERENTIATION INTO CARDIOMY  
FILE REFERENCE: 00766,000043  
CURRENT FILING DATE: 2001-09-17  
CURRENT FILING DATE: 2001-09-17  
PRIOR FILING DATE: 1999-12-28  
PRIOR FILING DATE: 1999-12-28  
PRIOR FILING DATE: 2000-02-28  
PRIOR FILING DATE: 2000-02-28  
PRIOR FILING DATE: 2000-11-02  
NUMBER OF SEQ ID NOS: 80  
SOFTWARE: Patent Ver. 2.0  
SEQ ID NO 7  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-749-728B-7

Query Match 98.7%; Score 817; DB 10; Length 155;  
Best Local Similarity 98.7%; Pred. No. 2.5e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAAPPFGHFKDPRKLYCKNGGFRLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOQAEERGVVSIKVCANRYLANKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 SSWYVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 9  
US-09-826-210-2  
Sequence 2, Application US/09826210

Patent No. US2001002004A1  
GENERAL INFORMATION:  
APPLICANT: Springer, Barry A.  
APPLICANT: Pantoliano, Michael W.  
APPLICANT: Sharp, Celja M.  
TITLE OF INVENTION: Analogs of Human basic fibroblast growth factor  
FILE REFERENCE: 1503.022003  
CURRENT APPLICATION NUMBER: US/09/826,210  
CURRENT FILING DATE: 2001-04-05  
PRIOR APPLICATION NUMBER: US 09/220,077  
PRIOR FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/068,667  
PRIOR FILING DATE: 1997-12-23  
NUMBER OF SEQ ID NOS: 4  
SOFTWARE: Patentin version 3.0  
SEQ ID NO 2  
LENGTH: 158  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-826-210-2

Query Match 98.7%; Score 817; DB 10; Length 158;  
Best Local Similarity 98.7%; Pred. No. 2.6e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 4 MAAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 63  
QY 61 KLQLAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 120  
DB 64 KLQLAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 123  
QY 121 SSWYVALKRTGQYKLGPKTGPOKAILFLPMSAKS 155  
DB 124 TSWYVALKRTGQYKLGSKTGPOKAILFLPMSAKS 158

RESULT 10  
US-09-902-773A-4  
Sequence 4, Application US/09902773A  
Patent No. US20020034787A1  
GENERAL INFORMATION:  
APPLICANT: HU, JING-SHAN  
GOCAYNE, JEANNINE D.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-10  
NUMBER OF SEQUENCES: 14  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: STERNE, KESSLER, GOLDSTEIN & FOX  
STREET: 1100 NEW YORK AVENUE, SUITE 600  
CITY: WASHINGTON  
STATE: DC  
COUNTRY: US  
ZIP: 20005-3934  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/902,773A  
FILING DATE: 12-Jul-2001  
CLASSIFICATION: <unknown>  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/803,926  
FILING DATE: 21-FEB-1997  
ATTORNEY/AGENT INFORMATION:  
NAME: STEFFE, ERIC K.  
REGISTRATION NUMBER: 36,688  
REFERENCE/DOCKET NUMBER: 1488.0350001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 371-2600  
TELEFAX: (202) 371-2540

INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 210 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
SEQUENCE DESCRIPTION: SEQ ID NO: 4:  
US-09-902-773A-4

Query Match 98.7%; Score 817; DB 10; Length 210;  
Best Local Similarity 98.7%; Pred. No. 3.6e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 56 MAAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 115  
QY 61 KLQLAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 120  
DB 116 KLQLAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 175  
QY 121 SSWYVALKRTGQYKLGPKTGPOKAILFLPMSAKS 155  
DB 176 TSWYVALKRTGQYKLGSKTGPOKAILFLPMSAKS 210

RESULT 11  
US-09-934-706-2  
Sequence 2, Application US/09934706  
Patent No. US20020102709A1  
GENERAL INFORMATION:  
APPLICANT: Teumo Corporation  
TITLE OF INVENTION: Functional Hybrid Polypeptide with Collagen-binding  
FILE REFERENCE: 19990120  
CURRENT APPLICATION NUMBER: US/09/934,706  
CURRENT FILING DATE: 2001-08-23  
NUMBER OF SEQ ID NOS: 16  
SOFTWARE:  
SEQ ID NO 2  
LENGTH: 159  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURES:  
OTHER INFORMATION: Description of Artificial Sequence: Human Basic  
OTHER INFORMATION: Fibroblast Growth Factor with Enterokinase  
OTHER INFORMATION: Recognition Sequence  
NAME/KEY: PEPTIDE  
LOCATION: (1)..(5)  
OTHER INFORMATION: /note="enterokinase recognition sequence"  
NAME/KEY: PEPTIDE  
LOCATION: (6)..(159)  
OTHER INFORMATION: /note="human fibroblast growth factor"  
US-09-934-706-2

Query Match 98.1%; Score 812; DB 10; Length 159;  
Best Local Similarity 98.7%; Pred. No. 8.5e-77;  
Matches 152; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 2 AAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 61  
DB 6 AAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 65  
QY 62 LQLAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 121  
DB 66 LQLAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 125  
QY 122 SSWYVALKRTGQYKLGPKTGPOKAILFLPMSAKS 155  
DB 126 SSWYVALKRTGQYKLGSKTGPOKAILFLPMSAKS 159



RESULT 12  
US-09-934-706-4  
Sequence 4, Application US/09934706  
Patent No. US20020102709A1  
GENERAL INFORMATION:  
APPLICANT: Terumo Corporation  
TITLE OF INVENTION: Tenuo Hybrid Polypeptide with Collagen-binding  
TITLE OF INVENTION: Activity  
FILE REFERENCE: 19990120  
CURRENT APPLICATION NUMBER: US/09/934,706  
CURRENT FILING DATE: 2001-08-23  
NUMBER OF SEQ ID NOS: 16  
SOFTWARE:  
SEQ ID NO 4  
LENGTH: 501  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Hybrid  
OTHER INFORMATION: Polypeptide of Human Fibronectin Collagen-Binding  
OTHER INFORMATION: Domain and Human Basic Fibroblast Growth Factor  
NAME/KEY: INIT\_MER  
LOCATION: (1)  
NAME/KEY: DOMAIN  
LOCATION: (2)..(341)  
OTHER INFORMATION: /note="human fibronectin collagen-binding domain"  
NAME/KEY: PEPTIDE  
LOCATION: (343)..(347)  
OTHER INFORMATION: /note="enterokinase recognition sequence"  
NAME/KEY: PEPTIDE  
LOCATION: (348)..(501)  
OTHER INFORMATION: /note="human fibroblast growth factor"  
US-09-934-706-4  
Query Match 98.1%; Score 812; DB 10; Length 501;  
Best Local Similarity 98.7%; Pred. No. 3.3e-76;  
Matches 152; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
Db 2 AAGSITLPLPEDGGGAGFPFGHFKDPKRLYCNGGFFLRHHPDGRVDGVRKSDPHIK 61  
348 AAGSITLPLPEDGGGAGFPFGHFKDPKRLYCNGGFFLRHHPDGRVDGVRKSDPHIK 407  
Qy 62 LQLOAERGVSVIKGVCANRYLANKEDRLASKCVTDECFPERLESNNYTRSRKY 121  
Db 408 LQLOAERGVSVIKGVCANRYLANKEDRLASKCVTDECFPERLESNNYTRSRKY 467  
Qy 122 SWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 155  
Db 468 SWYVALKRTGQYKLGPKTGPQKAILFLPMSAKS 501

RESULT 13  
US-10-016-447-8  
Sequence 8, Application US/10016447  
Patent No. US20020090651A1  
GENERAL INFORMATION:  
APPLICANT: Kirschner, Marc W.  
TITLE OF INVENTION: Receptor-Ligand Assay  
FILE REFERENCE: H095-01A2  
CURRENT APPLICATION NUMBER: US/10/016,447  
CURRENT FILING DATE: 2001-12-10  
PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: US/08/776,207  
PRIOR FILING DATE: EARLIER FILING DATE: 1997-06-23  
PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 08/441,629  
PRIOR FILING DATE: EARLIER FILING DATE: 1995-05-15  
PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 08/279,217  
PRIOR FILING DATE: EARLIER FILING DATE: 1994-07-22  
NUMBER OF SEQ ID NOS: 18  
SOFTWARE: PASCSEQ for Windows Version 3.0  
SEQ ID NO 8  
LENGTH: 150  
TYPE: PRT

ORGANISM: Homo sapien  
US-10-016-447-8  
Query Match 96.0%; Score 795; DB 12; Length 150;  
Best Local Similarity 98.7%; Pred. No. 4.5e-75;  
Matches 148; Conservative 1; Mismatches 1; Indels 0; Gaps 0;  
Qy 1 MAAGSITLPLPEDGGGAGFPFGHFKDPKRLYCNGGFFLRHHPDGRVDGVRKSDPHI 60  
Db 1 MAAGSITLPLPEDGGGAGFPFGHFKDPKRLYCNGGFFLRHHPDGRVDGVRKSDPHI 60  
Qy 61 KLQLOAERGVSVIKGVCANRYLANKEDRLASKCVTDECFPERLESNNYTRSRKY 120  
Db 61 KLQLOAERGVSVIKGVCANRYLANKEDRLASKCVTDECFPERLESNNYTRSRKY 120  
Qy 121 SSWYVALKRTGQYKLGPKTGPQKAILFLP 150  
Db 121 TSWYVALKRTGQYKLGPKTGPQKAILFLP 150

RESULT 14  
US-10-131-965-5  
Sequence 5, Application US/10131965  
Patent No. US20020165160A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
TITLE OF INVENTION: Angiogenically Effective Unit Dose of FGF and Method of  
FILE REFERENCE: 1296/12169US05  
CURRENT APPLICATION NUMBER: US/10/131,965  
CURRENT FILING DATE: 2002-04-25  
PRIOR APPLICATION NUMBER: US/09/417,721  
PRIOR FILING DATE: 1999-10-13  
PRIOR APPLICATION NUMBER: 60/104,103  
PRIOR FILING DATE: 1998-10-13  
NUMBER OF SEQ ID NOS: 15  
SOFTWARE: Patentin Ver. 2.0  
SEQ ID NO 5  
LENGTH: 146  
TYPE: PRT  
ORGANISM: bovine FGF-2  
US-10-131-965-5  
Query Match 95.0%; Score 787; DB 9; Length 146;  
Best Local Similarity 100.0%; Pred. No. 2.9e-74;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
Qy 10 PALPEDGGGAGFPFGHFKDPKRLYCNGGFFLRHHPDGRVDGVRKSDPHIKLQLOAER 69  
Db 1 PALPEDGGGAGFPFGHFKDPKRLYCNGGFFLRHHPDGRVDGVRKSDPHIKLQLOAER 60  
Qy 70 GWSIKGVCANRYLANKEDRLASKCVTDECFPERLESNNYTRSRKYSWYVALK 129  
Db 61 GWSIKGVCANRYLANKEDRLASKCVTDECFPERLESNNYTRSRKYSWYVALK 120  
Qy 130 TGOYKLGPKTGPQKAILFLPMSAKS 155  
Db 121 TGOYKLGPKTGPQKAILFLPMSAKS 146

RESULT 15  
US-09-802-365-2  
Sequence 2, Application US/09802365  
Patent No. US20020032153A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha J.  
TITLE OF INVENTION: Methods and Compositions for the  
FILE REFERENCE: 1671.003  
CURRENT APPLICATION NUMBER: US/09/802,365  
CURRENT FILING DATE: 2001-03-09  
PRIOR APPLICATION NUMBER: 60/188,480

;; PRIOR FILING DATE: 2000-03-10  
;; PRIOR APPLICATION NUMBER: 60/203,415  
;; PRIOR FILING DATE: 2000-05-11  
;; NUMBER OF SEQ ID NOS: 9  
;; SOFTWARE: FASTSEQ for Windows Version 4.0  
;; SEQ ID NO 2  
;; LENGTH: 146  
;; TYPE: PRT  
;; ORGANISM: Bos taurus  
US-09-802-365-2

Query Match 95.0%; Score 787; DB 10; Length 146;  
Best Local Similarity 100.0%; Pred. No. 2.9e-74;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY	10	PALPEDGSSGAFPPGHFKYDPKLYCKNGGFFLRHPDGRVDGVREKSDPHIKLQIAEER	69
DB	1	PALPEDGSSGAFPPGHFKYDPKLYCKNGGFFLRHPDGRVDGVREKSDPHIKLQIAEER	60
QY	70	GVSIRKGVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNNTYRSRKYSSWYVALKR	129
DB	61	GVSIRKGVCANRYLAMKEDGRLLASKCVTDCEFFERLESNNNTYRSRKYSSWYVALKR	120
QY	130	TGQYKLGPKTGPQOKAILFLPMSAKS	155
DB	121	TGQYKLGPKTGPQOKAILFLPMSAKS	146

Search completed: December 16, 2002, 17:56:31  
Job time : 8.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:53:20 ; Search time 14.5 Seconds  
(without alignment)  
1027.644 Million cell updates/sec

Title: 'us-09-886-856-6

Perfect score: 828  
Sequence: 1 MAAGSTTLPALPEDGSGA.....GPKTGPQKAILFLPMASKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: p1r1:\*  
2: p1r2:\*  
3: p1r3:\*  
4: p1r4:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	828	100.0	157	1 GKB0B	basic fibroblast g
2	817	98.7	210	2 A32398	basic fibroblast g
3	796.5	96.2	154	2 A31574	basic fibroblast g
4	781.5	94.4	154	2 C37360	basic fibroblast g
5	781	94.3	146	1 S00185	basic fibroblast g
6	770	93.0	189	2 A48834	basic fibroblast g
7	758.5	91.6	164	2 S31622	basic fibroblast g
8	736	88.9	137	2 I46711	fibroblast growth
9	685	82.7	155	1 A40117	basic fibroblast g
10	466.5	56.3	155	2 A32484	basic fibroblast g
11	427.5	51.6	155	1 A60721	acidic fibroblast
12	419.5	50.7	155	2 A60130	acidic fibroblast
13	418.5	50.5	155	1 A33655	acidic fibroblast
14	413.5	49.9	155	2 S04147	acidic fibroblast
15	413.5	49.9	155	2 D37360	acidic fibroblast
16	412.5	49.8	152	2 JH0476	acidic fibroblast
17	404.5	48.9	155	2 JH0055	acidic fibroblast
18	402.5	48.6	155	1 GKB0A	acidic fibroblast
19	262	31.6	194	2 I50710	fibroblast growth
20	252.5	30.5	206	1 TVHHS	fibroblast growth
21	252	30.4	256	2 JC4627	fibroblast growth
22	250.5	30.3	264	2 A36207	fibroblast growth
23	250.5	30.3	266	2 S68144	fibroblast growth
24	249	29.6	220	2 I50588	fibroblast growth
25	245	29.6	208	2 S20102	fibroblast growth
26	245	29.6	208	2 S14192	fibroblast growth
27	244.5	29.5	206	2 JC4268	fibroblast growth
28	241	29.1	267	1 TVHDS	fibroblast growth
29	238.5	28.8	202	1 TVMHS	fibroblast growth

30	236	28.5	187	2	S23595	embryonic fibroblast
31	235.5	28.4	237	1	S39582	transforming prote
32	235	28.4	245	1	TVMST2	transforming prote
33	234	28.3	199	1	S04742	fibroblast growth
34	231.5	28.0	192	2	S54407	embryonic fibroblast
35	216	26.1	208	2	S66486	fibroblast growth
36	216	26.1	208	2	A48137	fibroblast growth
37	209	25.2	211	2	JC7353	fibroblast growth
38	207	25.0	208	2	JC7082	fibroblast growth
39	206.5	24.9	207	2	JC5940	fibroblast growth
40	205.5	24.8	207	2	JC5941	fibroblast growth
41	204.5	24.7	194	2	I48610	keratinocyte growth
42	203	24.5	212	2	JC7511	fibroblast growth
43	202.5	24.5	194	1	A36301	fibroblast growth
44	202.5	24.5	194	1	S26049	fibroblast growth
45	202.5	24.5	194	2	S49501	keratinocyte growth

## ALIGNMENTS

## RESULT 1

GKB0B

basic fibroblast growth factor precursor - bovine (fragment)  
N/Alternate names: bFGF, kidney-derived growth factor; prostatripin

C/Species: Bos primigenius taurus (cattle)  
C/Date: 13-Aug-1986 #sequence revision 02-Jun-1995 #text\_change 24-Nov-1999

C/Accession: A24663; A32878; A33784; A61551; A60310; A61094; A01386; A60316; A220

R/Abraham, J.A.; Whang, J.L.; Tumlolo, A.; Mergia, A.; Fiddes, J.C.  
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A/Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization,  
A/Reference number: A90924; MUID:87217066; PMID:3472745

A/Accession: A32878  
A/Residues: 3-157 <ABR>

A/Molecule type: mRNA  
A/Residues: 3-157 <AB2>

R/Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.  
Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989

A/Title: A novel 17 kd heparin-binding growth factor (HBGF-8) in bovine uterus: purified  
A/Reference number: A33784; MUID:90121211; PMID:2610682

A/Accession: A33784  
A/Molecule type: protein

A/Residues: 1-14 <ML>  
A/Note: demonstration of a possible alternative initiator or splice junction

R/Bertolini, J.; Hearn, M.T.W.  
Mol. Cell. Endocrinol. 51, 187-199, 1987

A/Title: Isolation, characterization and tissue localization of an N-terminal-truncated  
A/Reference number: A61550; MUID:87247652; PMID:3596000

A/Accession: A61550  
A/Molecule type: protein

A/Residues: 16-35 <BR>  
A/Note: demonstration of a possible alternative initiator or splice junction

R/Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
Mol. Cell. Endocrinol. 49, 189-194, 1987

A/Title: Isolation and partial characterization of basic fibroblast growth factor from bovine  
A/Reference number: A61551; MUID:87162856; PMID:3556754

A/Accession: A61551  
A/Molecule type: protein

A/Residues: 27-35, X', 37-41 <UB3>  
A/Note: this form appears to be identical to the renal form

R/Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Guillemin, R.  
Regul. Pept. 16, 135-145, 1986

A/Title: Purification and partial characterization of a mitogenic factor from bovine liver  
A/Reference number: A60310; MUID:87119165; PMID:3809608

A/Accession: A60310  
A/Molecule type: protein

A: Molecule type: protein  
 A: Residues: 23-35, 'X', 37-42 <UEN>  
 A: Experimental source: liver  
 R: Ikeno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986  
 A: Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.  
 A: Reference number: A24819; PMID:86295737; PMID:3741423  
 A: Contents: annotation  
 A: Note: the amino end of this form was blocked; the peptide composition matched what was  
 R: Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.  
 Endocrinology 118, 82-90, 1986  
 A: Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical  
 A: Reference number: A61094; PMID:86081530; PMID:3940857  
 A: Accession: A61094  
 A: Molecule type: protein  
 A: Residues: 12-25, 27-35, 'X', 37-40 <GOS>  
 A: Experimental source: adrenal gland  
 R: Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denicoy, L.; Klepper, R.; Gospodarowicz, D.  
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985  
 A: Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and  
 A: Reference number: A01386; PMID:86016731; PMID:3663109  
 A: Accession: A01386  
 A: Molecule type: protein  
 A: Residues: 12-157 <ESC>  
 A: Experimental source: pituitary gland  
 R: Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.  
 Regul. Pept. 12, 201-213, 1985  
 A: Title: Isolation and partial characterization of an endothelial cell growth factor fr  
 A: Reference number: A60316; PMID:86095426; PMID:4061126  
 A: Accession: A60316  
 A: Molecule type: protein  
 A: Residues: 27-35, 'X', 37-43 <BAI>  
 A: Experimental source: kidney  
 R: Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.  
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984  
 A: Title: Isolation and partial molecular characterization of pituitary fibroblast growth  
 A: Reference number: A22054; PMID:84298139; PMID:6591194  
 A: Accession: A22054  
 A: Molecule type: protein  
 A: Residues: 12-26 <BOH>  
 C: Comment: The acidic and basic fibroblast growth factors are the major endothelial cell  
 cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating b  
 C: Comment: This protein binds heparin more strongly than does aFGF.  
 C: Superfamily: fibroblast growth factor  
 C: Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari  
 C: Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari  
 F: 1-157/Product: basic fibroblast growth factor; uterine form #status predicted <MAT>  
 F: 4-157/Product: basic fibroblast growth factor; pituitary gamma form #status experiment  
 F: 12-157/Product: basic fibroblast growth factor; pituitary alpha form #status experiment  
 F: 16-157/Product: basic fibroblast growth factor; pituitary short form #status predicted  
 F: 21-157/Product: basic fibroblast growth factor; hepatic form #status experimental <MAT>  
 F: 27-157/Product: basic fibroblast growth factor; renal form #status experimental  
 F: 29-33, 118-121/Region: heparin binding #status predicted  
 F: 4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

Query Match 100.0%; Score 828; DB 1; Length 157;  
 Best Local Similarity 100.0%; Pred. No. 8, 2e-75;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAASITTLPALPEDGSGAFPGHFKDPKRLCYKNGGFLRIHDPGRVDGVRKSDPHI 60  
 DB 3 MAASITTLPALPEDGSGAFPGHFKDPKRLCYKNGGFLRIHDPGRVDGVRKSDPHI 62  
 QY 61 KLOQAEBRGVSVIKGVCANRYLANKKGRLLASGCVTDECFPPERLSSNNYNYRSKXY 120  
 DB 63 KLOQAEBRGVSVIKGVCANRYLANKKGRLLASGCVTDECFPPERLSSNNYNYRSKXY 122  
 QY 121 SSWYVALKRTGQYKLGPTGPGOKAILFLPMASXS 155  
 DB 123 SSWYVALKRTGQYKLGPTGPGOKAILFLPMASXS 157

RESULT 2  
 A32398

basic fibroblast growth factor precursor, 22.5K form - human  
 N: Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prostatic  
 N: Contains: basic fibroblast growth factor, 18K form  
 C: Species: Homo sapiens (man)  
 C: Date: 31-Jul-1989 #sequence revision 31-Dec-1993 #text change 21-Jul-2000  
 C: Accession: A33398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824; B2  
 R: Prasad, H.; Kagehad, M.; Prasad, A.C.; Klagsbrun, M.; Lelias, J.M.; Lianzun, P.; Chalon,  
 Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989  
 A: Title: High molecular mass forms of basic fibroblast growth factor are initiated by a  
 A: Reference number: A32398; PMID:89184522; PMID:2538817  
 A: Accession: A32398  
 A: Molecule type: mRNA  
 A: Residues: 1-210 <PRA>  
 A: Cross-references: GB:J04513; NID:9183083; PIDN:AAA52531.1; PID:9459811  
 R: Shibata, F.; Baird, A.; Floorkiewicz, R.Z.  
 Growth Factors 4, 277-287, 1991  
 A: Title: Functional characterization of the human basic fibroblast growth factor gene F  
 A: Reference number: A61537; PMID:92110035; PMID:1764264  
 A: Accession: A61537  
 A: Molecule type: DNA  
 A: Residues: 1-114 <SHI>  
 A: Note: authors translated the codon GGA for residue 47 as Ala  
 R: Kurokawa, T.; Saeeda, R.; Iwane, M.; Igarashi, K.  
 FEBS Lett. 213, 189-194, 1987  
 A: Title: Cloning and expression of cDNA encoding human basic fibroblast growth factor.  
 A: Reference number: A26642; PMID:87162468; PMID:2435575  
 A: Accession: A26642  
 A: Molecule type: mRNA  
 A: Residues: 56-210 <KUN>  
 A: Cross-references: GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563  
 R: Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.  
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986  
 A: Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization  
 A: Reference number: A90924; PMID:87217066; PMID:3472745  
 A: Accession: B32878  
 A: Molecule type: mRNA  
 A: Residues: 56-210 <ABR>  
 A: Note: the authors translated the codon GAA for residue 108 as Gly  
 R: Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.;  
 EMBO J. 5, 2523-2528, 1986  
 A: Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organiza  
 A: Reference number: S00297; PMID:87053817; PMID:3780670  
 A: Accession: S00297  
 A: Status: not compared with conceptual translation  
 A: Molecule type: DNA  
 A: Residues: 1-155 <AB2>  
 A: Note: the authors translated the codon GAA for residue 108 as Gly  
 R: Shimoyama, Y.; Gotch, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.  
 Jpn. J. Cancer Res. 82, 1263-1270, 1991  
 A: Title: Characterization of high-molecular-mass forms of basic fibroblast growth factor  
 A: Reference number: A54316; PMID:92091228; PMID:1721615  
 A: Accession: A54316  
 A: Molecule type: protein  
 A: Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>  
 A: Experimental source: C-1121 hepatocellular carcinoma cell line  
 A: Note: sequence extracted from NCBI backbone (NCBIP:71595)  
 A: Accession: B54316  
 A: Molecule type: protein  
 A: Residues: 'XXX', 19, 'X', 21-29 <SH2>  
 A: Note: sequence extracted from NCBI backbone (NCBIP:71594)  
 R: Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farrie, J.; Cousins, L.C.; Barr, P.J.; Baird  
 J. Cell Biol. 109, 3105-3114, 1989  
 A: Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylati  
 A: Reference number: A33624; PMID:90078343; PMID:2592418  
 A: Accession: A33624  
 A: Status: preliminary  
 A: Molecule type: protein  
 A: Residues: 57-210 <FEI>  
 R: Story, M.T.; Esch, F.; Shimazaki, S.; Saeeda, J.; Jacobs, S.C.; Lawson, R.K.  
 Biochem. Biophys. Res. Commun. 142, 702-709, 1987  
 A: Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isol  
 A: Reference number: A25824; PMID:87156686; PMID:2435284

A/Accession: A25824  
 A/Molecule type: protein  
 A/Residues: 57-77 <STO>  
 A/Experimental source: prostate  
 R/Gimenez-Galligo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986  
 A/Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal  
 A/Reference number: A90122; MUID:86186784; PMID:3964259  
 A/Accession: B24243  
 A/Molecule type: protein  
 A/Residues: 65-102, 'X', 104-105 <GIM>  
 A/Experimental source: brain  
 R/Gautschi, P.; Frazer-Schroder, M.; Bohlen, P.  
 FEBS Lett. 204, 203-207, 1986  
 A/Title: Partial molecular characterization of endothelial cell micogens from human brain  
 A/Reference number: A91364; MUID:86275260; PMID:3732516  
 A/Accession: B24301  
 A/Molecule type: protein  
 A/Residues: 65-88, 'X', 90-98, 'X', 100 <GAU>  
 R/Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.  
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
 A/Title: A form of human basic fibroblast growth factor with an extended amino terminus  
 A/Reference number: S42242; MUID:87213238; PMID:3579930  
 A/Accession: S42242  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 54-210 <SOM>  
 A/Cross-references: EMBL:M17599; NID:G183086; PIDN:AA52534.1; PID:G183087  
 R/Panciolano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobey, T.; Wetmore, D.  
 Biochemistry 33, 10229-10248, 1994  
 A/Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor  
 A/Reference number: A55784; MUID:94347757; PMID:7520751  
 A/Accession: B55784  
 A/Molecule type: protein  
 A/Residues: 54-71 <PAN>  
 R/Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.  
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992  
 A/Title: Reverse transcription with nested polymerase chain reaction shows expression of  
 A/clients.  
 A/Reference number: I52267; MUID:93038590; PMID:1417798  
 A/Accession: I52267  
 A/Status: preliminary; translated from GB/EMBL/DBJ  
 A/Molecule type: mRNA  
 A/Residues: 95-182 <RES>  
 A/Cross-references: GB:S47380; NID:G256535; PIDN:AA013853.1; PID:G4261553  
 A/Experimental source: granulosa cells  
 R/Patry, V.; Buglar, B.; Amalric, F.; Prome, J.C.; Prats, H.  
 FEBS Lett. 349, 23-28, 1994  
 A/Title: Purification and characterization of the 210-amino acid recombinant basic fibro  
 A/Reference number: S46253; MUID:94320639; PMID:8045296  
 A/Accession: S46253  
 A/Molecule type: protein  
 A/Residues: 39-53; 65-88 <PAT>  
 A/Note: recombinant gene expressed in Escherichia coli  
 C/Genetics:  
 A/Gene: GDB:FGF2, FGFB  
 A/Cross-references: GDB:119910; OMIM:134920  
 A/Map position: 4q25-4q27  
 A/Start codon: CTG  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; microg  
 F/1-210/Product: basic fibroblast growth factor, 22.5K form #status predicted <MA>  
 F/65-210/Product: basic fibroblast growth factor, 18K form #status predicted <PAT>  
 F/82-86/Region: heparin binding #status predicted  
 F/171-174/Region: heparin binding #status predicted

Query Match 98.7%; Score 817; DB 2; Length 210;  
 Best Local Similarity 98.7%; Pred. No. 1,4e-73;  
 Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 1 MAAGSITTLPALPEDGSGAFPPGKFKDPRKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 DB 56 MAAGSITTLPALPEDGSGAFPPGKFKDPRKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 115

OY 61 KLOLAERGVSVIKGVCANRYLAMKEDGRLASKCVTECEFFERLESNNYTYRSRY 120  
 DB 116 KLOLAERGVSVIKGVCANRYLAMKEDGRLASKCVTECEFFERLESNNYTYRSRY 175

OY 121 SSMVALKRTGYKLGPKTGGOKAILFLPMSAKS 155  
 DB 176 TSMVALKRTGYKLGSKTPGOKAILFLPMSAKS 210

RESULT 3  
 A31674  
 basic fibroblast growth factor precursor - rat  
 N/Alternate names: bFGF  
 C/Species: Rattus norvegicus (Norway rat)  
 C/Date: 21-May-1990 #sequence revision 21-May-1990 #text\_change 16-Jul-1999  
 C/Accession: A31674; S00876; S24309  
 R/Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cocksey, K.; Baird, A.;  
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988  
 A/Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth  
 A/Reference number: A31674; MUID:89061721; PMID:3196337  
 A/Accession: A31674  
 A/Molecule type: mRNA  
 A/Residues: 1-154 <SHI>  
 A/Cross-references: GB:M22427; NID:G204285; PIDN:AAA41210.1; PID:G204286  
 R/Kurokawa, T.; Seno, M.; Igarashi, K.  
 Nucleic Acids Res. 16, 5201, 1988  
 A/Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.  
 A/Reference number: S00876; MUID:88262516; PMID:3387229  
 A/Accession: S00876  
 A/Molecule type: mRNA  
 A/Residues: 1-154 <KUR>  
 A/Cross-references: EMBL:X07285; NID:G56203; PIDN:CAA30265.1; PID:G56204  
 R/El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.  
 Biochim. Biophys. Acta 1131, 314-316, 1992  
 A/Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA conta  
 A/Reference number: S24309; MUID:92329546; PMID:1378302  
 A/Accession: S24309  
 A/Status: preliminary; translation not shown  
 A/Molecule type: mRNA  
 A/Residues: 35-154 <ELH>  
 A/Cross-references: EMBL:X61697; NID:G56143; PIDN:CAA43863.1; PID:G56144  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor  
 F/1-9/Domin: signal sequence #status predicted <SIG>  
 F/10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match 96.2%; Score 796.5; DB 2; Length 154;  
 Best Local Similarity 96.8%; Pred. No. 1.1e-71;  
 Matches 150; Conservative 3; Mismatches 1; Indels 1; Gaps 1;

OY 1 MAAGSITTLPALPEDGSGAFPPGKFKDPRKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPPGKFKDPRKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 59

OY 61 KLOLAERGVSVIKGVCANRYLAMKEDGRLASKCVTECEFFERLESNNYTYRSRY 120  
 DB 120 SSMVALKRTGYKLGSKTPGOKAILFLPMSAKS 154

OY 121 SSMVALKRTGYKLGPKTGGOKAILFLPMSAKS 155  
 DB 120 SSMVALKRTGYKLGSKTPGOKAILFLPMSAKS 154

RESULT 4  
 C37360  
 basic fibroblast growth factor - mouse  
 C/Species: Mus musculus (house mouse)  
 C/Date: 17-Apr-1993 #sequence revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C/Accession: C37360  
 R/Hebert, J.M.; Basilio, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A/Title: Isolation of cDNAs encoding four mouse FGF family members and characterization

A:Reference number: A37360; MUID:90201563; PMID:2318933  
 A:Accession: C37360  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-154 <HEB>  
 A:Cross-references: GB:M30644; NID:9193296; PIDN:AAA7621.1; PID:9309239  
 C:Superfamily: fibroblast growth factor

Query Match 94.4%; Score 781.5; DB 2; Length 154;  
 Best Local Similarity 94.8%; Pred. No. 3.3e-70;  
 Matches 147; Conservative 4; Mismatches 3; Indels 1; Gaps 1;

QY 1 MAAGSITTLPALPEDGSGAFPPGHPKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGGA AFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHV 59  
 QY 61 KIQLOAEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
 DB 60 KIQLOAEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 119  
 QY 121 SSMVVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
 DB 120 SSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 154

## RESULT 5

basic fibroblast growth factor - sheep

N:Alternate names: procatropin  
 C:Species: Ovis orientalis aries; Ovis ammon aries (domestic sheep)  
 C:Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 C:Accession: S00185  
 R:Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabrl, L.J.; Nice, E.C.; Rubira, M.R.; Burge  
 FEBS Lett. 224, 128-132, 1987  
 A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.  
 A:Reference number: S00185; MUID:86055577; PMID:3678486  
 A:Accession: S00185  
 A:Molecule type: protein  
 A:Residues: 1-146 <SIM>  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor; heparin binding; mitogen  
 F:18-22/Region: heparin binding #status predicted  
 F:107-110/Region: heparin binding #status predicted

Query Match 94.3%; Score 781; DB 1; Length 146;  
 Best Local Similarity 99.3%; Pred. No. 3.5e-70;  
 Matches 145; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 10 PALPEDGSGAFPPGHPKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHIKIQLOAEER 69  
 DB 1 PALPEDGSGAFPPGHPKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHIKIQLOAEER 60  
 QY 70 GVVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKYSSWYVALKR 129  
 DB 61 GVVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKYSSWYVALKR 120  
 QY 130 TGOYKLGPKTGPQKAILFLPMSAKS 155  
 DB 121 TGOYKLGPKTGPQKAILFLPMSAKS 146

## RESULT 6

basic fibroblast growth factor - chicken

C:Species: Gallus gallus (chicken)  
 C:Date: 01-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 16-Jul-1999  
 C:Accession: A48834; S23636  
 R:Bojia, A.Z.; Meijers, C.; Zeller, R.  
 Dev. Biol. 157, 110-118, 1993  
 A:Title: Expression of alternatively spliced bFGF first coding exons and antisense mRNA  
 A:Reference number: A48834; MUID:93246053; PMID:7683281  
 A:Accession: A48834  
 A:Status: preliminary

A:Molecule type: nucleic acid

A:Residues: 1-189 <BOR>  
 A:Experimental source: embryo  
 A:Note: sequence extracted from NCBI backbone (NCBI:131000, NCBI:131001)  
 R:Milgram, E.; Grunbaum, Y.; Shohat, H.; Ziv, T.  
 Development 109, 387-393, 1990  
 A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo.  
 A:Reference number: S23636; MUID:90382254; PMID:2401202  
 A:Accession: S23636  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 95-128 <MT>  
 A:Cross-references: EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856  
 C:Superfamily: fibroblast growth factor

Query Match 93.0%; Score 770; DB 2; Length 189;  
 Best Local Similarity 93.5%; Pred. No. 5.7e-69;  
 Matches 144; Conservative 4; Mismatches 6; Indels 0; Gaps 0;

QY 2 AAGSITTLPALPEDGSGAFPPGHPKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHI 61  
 DB 36 AAGSITTLPALPDGSGAFPPGHPKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHI 95  
 QY 62 IQLOAEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 121  
 DB 96 IQLOAEERGVSISIKVCANRYLAMKEDGRLALKCATECFPERLESNNYNTYRSRKY 155  
 QY 122 SSMVVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
 DB 156 DMVVALKRTGOYKLGPKTGPQKAILFLPMSAKS 189

## RESULT 7

basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragment)

C:Species: Monodelphis domestica  
 C:Date: 20-Feb-1995 #sequence\_revision 20-Feb-1995 #text\_change 12-Apr-1995  
 R:Kuswilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.  
 submitted to the EMBL Data Library, September 1992  
 A:Description: Characterization of cDNA encoding basic fibroblast growth factor of the  
 A:Reference number: S31622  
 A:Accession: S31622  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-164 <KUS>  
 A:Cross-references: EMBL:Z15154  
 C:Superfamily: fibroblast growth factor

Query Match 91.6%; Score 758.5; DB 2; Length 164;  
 Best Local Similarity 92.9%; Pred. No. 6.7e-68;  
 Matches 145; Conservative 4; Mismatches 6; Indels 1; Gaps 1;

QY 1 MAAGSITTLPALPED-GSGAFPPGHPKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 59  
 DB 9 MAAGSITTLPALSGGGGGAFFPGHPKDPKRLYCKNGGFLLRIHPDGRVDGIREKSDPH 68  
 QY 60 IKLOAEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 119  
 DB 69 IKLOAEERGVSISIKVCANRYLAMKEDGRLALKYVTECFPERLESNNYNTYRSRKY 128  
 QY 120 YSMVVALKRTGOYKLGPKTGPQKAILFLPMSAKS 155  
 DB 129 YSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 164

## RESULT 8

fibroblast growth factor - rabbit (fragment)

C:Species: Oryctolagus cuniculus (domestic rabbit)  
 C:Date: 14-Feb-1997 #sequence\_revision 14-Feb-1997 #text\_change 16-Jul-1999  
 C:Accession: I46711  
 R:Winkler, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liao, G.

Am. J. Pathol. 143, 518-527, 1993  
 A>Title: Elevated expression of basic fibroblast growth factor in an immortalized rabbit  
 A/Reference number: 146711; MUID:93343209; PMID:8342599  
 A/Accession: 146711  
 A/Status: preliminary; translated from GB/EMBL/DBJ  
 A/Molecule type: mRNA  
 A/Residues: 1-137 <MIN>  
 A/Cross-references: GB:112034; NID:G165014; PIDN:AAA31248.1; PID:G165015  
 C/Superfamily: fibroblast growth factor

Query Match 88.9%; Score 736; DB 2; Length 137;  
 Best Local Similarity 99.3%; Pred. No. 9.4e-66;  
 Matches 136; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 10 PALPEGGSGAPFGPHKPKRLYCKNGGFRLIHPDGRVDGVREKSDPHIKLOAEER 69  
 DB 1 PALPEGGSGAPFGPHKPKRLYCKNGGFRLIHPDGRVDGVREKSDPHIKLOAEER 60  
 QY 70 GVYSIKGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRYSSWYVALKR 129  
 DB 61 GVSTIGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRYSSWYVALKR 120  
 QY 130 TGGYKLGPKTGPQKAI 146  
 DB 121 TGGYKLGSKTGPQKAI 137

## RESULT 9

A40117  
 basic fibroblast growth factor - African clawed frog

C/Species: Xenopus laevis (African clawed frog)  
 C/Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999

A/Accession: A40117; A29618  
 R/Kimelman, D.; Abrahim, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.  
 Science 242, 1053-1056, 1988

A>Title: The presence of fibroblast growth factor in the frog egg: its role as a natural  
 A/Reference number: A40117; MUID:89058621; PMID:3194757

A/Accession: A40117  
 A/Status: preliminary

A/Molecule type: mRNA  
 A/Residues: 1-155 <KIM>

A/Cross-references: GB:M18067; NID:G214177; PIDN:AAA49726.1; PID:G214178; GB:M21092  
 R/Kimelman, D.; Kirschner, M.

Cell 51, 869-877, 1987

A>Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of  
 A/Reference number: A29618; MUID:88052890; PMID:3479265

A/Accession: A29618  
 A/Molecule type: mRNA

A/Residues: 95-110,112-155 <K12>  
 C/Superfamily: fibroblast growth factor

Query Match 82.7%; Score 685; DB 1; Length 155;  
 Best Local Similarity 83.9%; Pred. No. 1.2e-60;  
 Matches 130; Conservative 8; Mismatches 17; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEGGSGAPFGPHKPKRLYCKNGGFRLIHPDGRVDGVREKSDPHI 60  
 DB 1 MAAGSITTLPRESDEGNTPEPSFGSKPKRLYCKNGGFRLINSDGRVDSRDSHI 60  
 QY 61 KLOQAEERGVVSIKGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRY 120  
 DB 61 KLOQAEERGVVSIKGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRY 120

QY 121 SSWYVALKRTGOYKLGPKTGPQKAIPLPMSAKS 155  
 DB 121 SSWYVALKRTGOYKLGSKTGPQKAIPLPMSAKS 155

## RESULT 10

A32484  
 basic fibroblast growth factor precursor, 25K - guinea pig (fragments)  
 C/Species: Cavia porcellus (guinea pig)

C/Date: 20-Oct-1989 #sequence\_revision 20-Oct-1989 #text\_change 15-Jun-1996  
 C/Accession: A32484  
 R/Sommer, A.; Moscatelli, D.; Rifkin, D.B.  
 Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989  
 A>Title: An amino-terminally extended and post-translationally modified form of a 25KD bc  
 A/Reference number: A32484; MUID:89273588; PMID:2730645  
 A/Accession: A32484  
 A/Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra  
 A/Molecule type: mRNA  
 A/Residues: 1-125 <SOM>  
 C/Superfamily: fibroblast growth factor

Query Match 56.3%; Score 466.5; DB 2; Length 125;  
 Best Local Similarity 63.2%; Pred. No. 4.6e-39;  
 Matches 98; Conservative 1; Mismatches 5; Indels 51; Gaps 3;

QY 1 MAAGSITTLPALPEGGSGAPFGPHKPKRLYCKNGGFRLIHPDGRVDGVREKSDPHI 60  
 DB 22 MAAGSITTLPALPEGGSGAPFGPHKPKRLYCKNGGFRLIHPDGRVDGVREKSDPHI 57  
 QY 61 KLOQAEERGVVSIKGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRY 120  
 DB 58 -LQQAEDR-----CUTDECFEERLESNNNTYRSRY 90  
 QY 121 SSWYVALKRTGOYKLGPKTGPQKAIPLPMSAKS 155  
 DB 91 SSWYVALKRTGOYKLGSKTGPQKAIPLPMSAKS 125

## RESULT 11

A60721  
 acidic fibroblast growth factor - golden hamster

N/Alternate names: heparin-binding growth factor 1  
 C/Species: Mesocricetus auratus (golden hamster)  
 C/Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999

A/Accession: A60721  
 J/Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.  
 J. Cell. Biochem. 43, 17-26, 1990

A>Title: Characterization of the hamster DDT-1 cell aGF/HGF-I gene and cDNA and its mo  
 A/Reference number: A60721; MUID:90270291; PMID:1693366

A/Accession: A60721  
 A/Status: not compared with conceptual translation

A/Molecule type: DNA  
 A/Residues: 1-155 <HAL>

A/Cross-references: GB:M18067; NID:G214177; PIDN:AAA49726.1; PID:G214178; GB:M21092

A/Status: not compared with conceptual translation  
 C/Superfamily: fibroblast growth factor

C/Keywords: growth factor; heparin binding

Query Match 51.6%; Score 427.5; DB 1; Length 155;  
 Best Local Similarity 55.4%; Pred. No. 4.3e-35;  
 Matches 87; Conservative 17; Mismatches 48; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEGGSGAPFGPHKPKRLYCKNGGFRLIHPDGRVDGVREKSDPHI 60  
 DB 1 MAAGSITTLFSLTRFN---LPENYKPKRLYCSNGHFLRILPDGTGTRDRSDHI 57  
 QY 61 KLOQAEERGVVSIKGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRY 120  
 DB 58 QLOQASASAGVYIKGVCANRYLAKMEDRLASKCVTDECFEERLESNNNTYRSRY 117  
 QY 121 S-SWYVALKRTGOYKLGPKTGPQKAIPLPMSAKS 155  
 DB 118 AKXWVFGKKGSKCKGPRHYGQKAIPLPMSAKS 154

## RESULT 12

A60130  
 acidic fibroblast growth factor - chicken  
 N/Alternate names: endothelial cell growth factor  
 C/Species: Gallus gallus (chicken)  
 C/Date: 03-Mar-1993 #sequence\_revision 03-Mar-1993 #text\_change 16-Jul-1999  
 C/Accession: A60130; S02639  
 R/Schuerch, H.; Risseu, W.  
 Development 111, 1143-1154, 1991





A:Residues: 16-155 <GA2>  
 A:Experimental source: brain  
 R:Chavan, A.B.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.;  
 Biochemistry 33, 7193-7202, 1994  
 C:Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C:Accession: D37360; J05231  
 R:Hebert, J.M.; Basillco, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
 A:Reference number: A37360; MUID:90201563; PMID:2318343  
 A:Accession: D37360  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <HEB>  
 A:Cross-references: GB:M30641; NID:9193284; PIDN:AAA37618.1; PID:G309236  
 R:Madai, F.; Hackshaw, K.V.; Chiu, I.M.  
 Gene 179, 231-236, 1996  
 A:Title: Cloning and characterization of the mouse Fgf-1 gene.  
 A:Reference number: J05231; MUID:97128312; PMID:8972905  
 A:Accession: J05231  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-155 <MAD>  
 A:Cross-references: GB:U36456  
 C:Comment: This protein is an inducer of neovascularization in angiogenic disease includ  
 C:Superfamily: fibroblast growth factor  
 A:Gene: Fgf-1  
 A:introns: 57/1, 91/3  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: alternative splicing; growth factor; heparin binding  
 F:16-155/Product: fibroblast growth factor 1 #status experimental <MAT>  
 F:129/Binding site: carbohydrate (Asn) (covalent) #status absent

Query Match 50.5%; Score 418.5; DB 1; Length 155;  
 Best Local Similarity 54.8%; Pred. No. 3,4e-34;  
 Matches 86; Conservative 17; Mismatches 49; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPRKLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Db 1 MAEGITTFALTEKFN--LPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDSDOI 57  
 QY 61 KLOLOAEERGVSIKGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 120  
 Db 58 QLOLSAESAGEVYIKETGTGYLAMDTGGLYGSQTPEBCLFLERLENNHYNTYRSKH 117  
 QY 121 S--SWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 Db 118 AEKNWFGVGLKKNKSCRGPRTHYGOKAILFLPLPVSS 154

RESULT 14  
 S04147  
 acidic fibroblast growth factor 1 - rat  
 N:Alternate names: heparin-binding growth factor 1  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 28-Feb-1990 #sequence\_revision 28-Feb-1990 #text\_change 16-Jul-1999  
 C:Accession: S04147  
 R:Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.  
 Nucleic Acids Res. 17, 2867, 1989  
 A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).  
 A:Reference number: S04147; MUID:89240051; PMID:2470029  
 A:Accession: S04147  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <GOO>  
 A:Cross-references: EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:956352  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor; heparin binding

Query Match 49.9%; Score 413.5; DB 2; Length 155;  
 Best Local Similarity 54.1%; Pred. No. 1.1e-33;  
 Matches 85; Conservative 18; Mismatches 49; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPRKLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Db 1 MAEGITTFALTEKFN--LPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDSDOI 57  
 QY 61 KLOLOAEERGVSIKGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 120  
 Db 58 QLOLSAESAGEVYIKETGTGYLAMDTGGLYGSQTPEBCLFLERLENNHYNTYRSKH 117  
 QY 121 S--SWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 Db 118 AEKNWFGVGLKKNKSCRGPRTHYGOKAILFLPLPVSS 154

RESULT 15  
 D37360

acidic fibroblast growth factor - mouse  
 N:Alternate names: aFGF; FGF-1  
 C:Species: Mus musculus (house mouse)  
 C:Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C:Accession: D37360; J05231  
 R:Hebert, J.M.; Basillco, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
 A:Reference number: A37360; MUID:90201563; PMID:2318343  
 A:Accession: D37360  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <HEB>  
 A:Cross-references: GB:M30641; NID:9193284; PIDN:AAA37618.1; PID:G309236  
 R:Madai, F.; Hackshaw, K.V.; Chiu, I.M.  
 Gene 179, 231-236, 1996  
 A:Title: Cloning and characterization of the mouse Fgf-1 gene.  
 A:Reference number: J05231; MUID:97128312; PMID:8972905  
 A:Accession: J05231  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-155 <MAD>  
 A:Cross-references: GB:U36456  
 C:Comment: This protein is an inducer of neovascularization in angiogenic disease includ  
 C:Superfamily: fibroblast growth factor  
 A:Gene: Fgf-1  
 A:introns: 57/1, 91/3

Query Match 49.9%; Score 413.5; DB 2; Length 155;  
 Best Local Similarity 54.1%; Pred. No. 1.1e-33;  
 Matches 85; Conservative 18; Mismatches 49; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPRKLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
 Db 1 MAEGITTFALTEKFN--LPGNYKKPKLLYCSNGGHFLRILPDGTVDGTRDSDOI 57  
 QY 61 KLOLOAEERGVSIKGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 120  
 Db 58 QLOLSAESAGEVYIKETGTGYLAMDTGGLYGSQTPEBCLFLERLENNHYNTYRSKH 117  
 QY 121 S--SWYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
 Db 118 AEKNWFGVGLKKNKSCRGPRTHYGOKAILFLPLPVSS 154

Search completed: December 16, 2002, 17:56:09  
 Job time: 14.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OW protein - protein search, using sw model

Run on: December 16, 2002, 17:54:01 ; Search time 8.5 Seconds

(without alignments)  
756.333 Million cell updates/sec

Title: 'US-09-886-856-6

Perfect score: 828

Sequence: 1 MAGSITLPALEDCGSGA.....GPKTGGKALFLPMASAKS 155

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database: SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	* Match Length	DB ID	Description
1	828	100.0	155 1	FGF2_BOVIN
2	822	99.3	155 1	FGF2_SHEEP
3	817	98.7	155 1	FGF2_HUMAN
4	796.5	96.2	154 1	FGF2_RAT
5	781.5	94.4	154 1	FGF2_MOUSE
6	770	93.0	158 1	FGF2_CHICK
7	758.5	91.6	156 1	FGF2_MONDO
8	736	88.9	137 1	FGF2_RABIT
9	685	82.7	155 1	FGF2_XENLA
10	427.5	51.6	155 1	FGF1_MESAU
11	419.5	50.7	155 1	FGF1_CHICK
12	418.5	50.5	155 1	FGF1_HUMAN
13	413.5	49.9	155 1	FGF1_MOUSE
14	412.5	49.8	152 1	FGF1_PIG
15	402.5	48.6	155 1	FGF1_BOVIN
16	262	31.6	194 1	FGF4_CHICK
17	252.5	30.5	206 1	FGF4_HUMAN
18	252	30.4	256 1	FGF3_BRARE
19	250.5	30.3	264 1	FGF5_MOUSE
20	250.5	30.3	266 1	FGF5_RAT
21	249	30.1	220 1	FGF3_CHICK
22	245.5	29.6	206 1	FGF4_BOVIN
23	245	29.6	208 1	FGF6_HUMAN
24	245	29.6	208 1	FGF6_MOUSE
25	242	29.2	268 1	FGF5_HUMAN
26	238.5	28.8	202 1	FGF4_MOUSE
27	235	28.5	187 1	FGF4_XENLA
28	235.5	28.4	237 1	FGF3_XENLA
29	235	28.4	245 1	FGF3_MOUSE
30	234	28.3	239 1	FGF3_HUMAN
31	231.5	28.0	192 1	FGF8_HUMAN
32	216	26.1	208 1	FGF9_HUMAN
33	216	26.1	208 1	FGF9_MOUSE

34	216	26.1	208 1	FGF9_RAT	P36364	rattus norv
35	212	25.6	209 1	FGF9_XENLA	Q91875	xenopus lae
36	209	25.2	211 1	FGFR_HUMAN	O9np95	homo sapien
37	206.5	24.9	207 1	FGFR_RAT	O54769	rattus norv
38	205.5	24.8	194 1	FGF7_CANFA	P79150	canis fam11
39	205.5	24.7	207 1	FGF6_HUMAN	O43320	homo sapien
40	204.5	24.7	194 1	FGF7_MOUSE	P36363	mus musculu
41	203	24.5	208 1	FGF4_HUMAN	O15520	homo sapien
42	203	24.5	215 1	FGF4_RAT	P70492	rattus norv
43	202.5	24.5	194 1	FGF7_HUMAN	P21781	homo sapien
44	202.5	24.5	194 1	FGF7_SHEEP	P48808	ovis aries
45	200	24.2	209 1	FGF4_MOUSE	O35565	mus musculu

#### ALIGNMENTS

RESULT 1  
ID FGF2\_BOVIN STANDARD; PRT; 155 AA.  
AC P03669;  
DT 23-OCT-1986 (Rel. 02, Created)  
DT 23-OCT-1986 (Rel. 02, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BRGF) (Prostate tropin) (Contains: Kidney-derived growth factor).  
DE FGF2 OR FGF-2.  
GN FGF2 OR FGF-2.  
OS Bos taurus (Bovine).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
OC Bovidae; Bovinae; Bos.  
OX NCBI\_TaxID=9913;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=86261806; PubMed=2425435;  
RA Abraham J.A., Merzia A., Whang J.L., Tumolo A., Friedman J.,  
RA Hjertild K.A., Gospodarowicz D., Fiddes J.C.;  
RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor";  
RL Science 233:545-548 (1986).  
RN [2]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=87217066; PubMed=3472745;  
RA Abraham J.A., Whang J.L., Tumolo A., Merzia A., Fiddes J.C.;  
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells";  
RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668 (1986).  
RN [3]  
RP SEQUENCE OF 10-155.  
RX MEDLINE=86016731; PubMed=3863109;  
RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klappper R.,  
RA Gospodarowicz D., Boehlen P., Guillemin R.;  
RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF";  
RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511 (1985).  
RN [4]  
RP SEQUENCE OF 1-9.  
RX MEDLINE=86295737; PubMed=3741423;  
RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;  
RT "Isolation of an amino terminal extended form of basic fibroblast growth factor";  
RL Biochem. Biophys. Res. Commun. 138:580-588 (1986).  
RN [5]  
RP SEQUENCE OF 25-41.  
RX MEDLINE=86053426; PubMed=4081126;  
RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;  
RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor";  
RL Regul. Pept. 12:201-213 (1985).

[6]  
 RN SEQUENCE OF 21-40.  
 RP TISSUE=Kidney; PubMed=3809608;  
 RC MEDLINE=87119165; PubMed=3809608;  
 RA Ueno N., Baird A., Esch F., Shimazaki S., Ling N., Guillemin R.,  
 RT "Purification and partial characterization of a mitogenic factor from  
 RT bovine liver: structural homology with basic fibroblast growth  
 RT factor";  
 RL Regul. Pept. 16:135-145(1986).  
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RA MEDLINE=91095983; PubMed=1702556;  
 RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
 RA Hsu B.T., Reese D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth  
 RT factors";  
 RL Science 251:90-93(1991).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; M13440; AAA30518.1; -  
 CC DR PIR; A24663; GKB0B.  
 CC DR PIR; A24819; A24819.  
 CC DR PIR; A32878; A32878.  
 CC DR PDB; 1BAS; 31-OCT-93.  
 CC InterPro; IPR002209; HB/F\_growthfact.  
 CC DR InterPro; IPR002348; IL1\_HBGF.  
 CC DR Pfam; PF00167; FGF\_1.  
 CC DR PRINTS; PR00262; IL1HBGF.  
 CC DR PRODOM; PD000831; HB/F\_growthfact; 1.  
 CC DR SMART; SM00442; FGF\_1.  
 CC DR PROSITE; PS00247; HBGF\_FGF; 1.  
 CC DR Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 CC 3D-structure.  
 CC KW PROPEP  
 FT CHAIN 1 955 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT CHAIN 25 155 KIDNEY-DERIVED GROWTH FACTOR.  
 FT SITE 46 48 CELL ATTACHMENT SITE (POTENTIAL).  
 FT SITE 88 90 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 27 31 HEPARIN (POTENTIAL).  
 FT BINDING 116 119 HEPARIN (POTENTIAL).  
 FT STRAND 30 34  
 FT TURN 35 38  
 FT STRAND 39 43  
 FT TURN 45 46  
 FT STRAND 49 52  
 FT TURN 55 56  
 FT TURN 58 60  
 FT HELIX 62 68  
 FT STRAND 69 70  
 FT TURN 71 76  
 FT STRAND 77 80  
 FT TURN 81 85  
 FT STRAND 87 88  
 FT TURN 91 94  
 FT STRAND 99 101  
 FT HELIX 103 107  
 FT STRAND 109 110  
 FT TURN 113 117

FT TURN 121 122  
 FT STRAND 124 124  
 FT STRAND 127 127  
 FT TURN 129 130  
 FT STRAND 133 133  
 FT HELIX 136 138  
 FT TURN 141 142  
 FT TURN 144 146  
 FT STRAND 148 151  
 SQ SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;  
 Query Match 100.0%; Score 828; DB 1; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 4.5e-79;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MAAGSITLPLPEDGGSGAPPFGHFKDPKLYCKNGGFLRIHPDGVGVREKSDPHI 60  
 DB 1 MAAGSITLPLPEDGGSGAPPFGHFKDPKLYCKNGGFLRIHPDGVGVREKSDPHI 60  
 QY 61 KQLQAEERGVVSIQVCANRYLAKMEDGRLIASCVTDECFPFRLSSNNYTRSRKY 120  
 DB 61 KQLQAEERGVVSIQVCANRYLAKMEDGRLIASCVTDECFPFRLSSNNYTRSRKY 120  
 QY 121 SSMVVALKRTGYKLGPKTPGQKALFLPMSAKS 155  
 DB 121 SSMVVALKRTGYKLGPKTPGQKALFLPMSAKS 155  
 RESULT 2  
 FGF2\_SHEEP  
 ID\_FGF2\_SHEEP STANDARD; PRT; 155 AA.  
 AC P20003;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast  
 DE growth factor) (BFGF) (Procatropin).  
 GN FGF2 OR FGF-2.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;  
 RL Submitted (SEP-1994) to the EMBL/Genbank/DBJ databases.  
 RP [2]  
 RP SEQUENCE OF 9-155.  
 RA MEDLINE=88055577; PubMed=3678486;  
 RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,  
 RA Rubira M.R., Burgess A.W.;  
 RT "Primary structure of ovine pituitary basic fibroblast growth  
 RT factor";  
 RL FEBS Lett. 224:128-132(1987).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 CC EMBL; L36136; AAA31519.1; -

DR PIR; S00185; S00185.  
 DR HSSP; P09038; 1BFF.  
 DR InterPro; IPRO02209; HB/F growthfact.  
 DR InterPro; IPRO02348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; HB/F growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 9  
 FT CHAIN 10 155  
 FT SITE 45 48 HEPARIN-BINDING GROWTH FACTOR 2.  
 FT SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 27 31 CELL ATTACHMENT SITE (POTENTIAL).  
 FT BINDING 116 119 HEPARIN (POTENTIAL).  
 SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;  
 Query Match 99.3%; Score 822; DB 1; Length 155;  
 Best Local Similarity 99.4%; Pred. No. 1,9e-78;  
 Matches 154; Conservative 0; Mismatches 1; Indels 0; Gaps 0;  
 QY 1 MAAGSITLPLPDPDGGSGAPPGHFKDPKRLYCKNGGFLRHPDGRVGVREKSDPHI 60  
 DB 1 MAAGSITLPLPDPDGGSSAPPGHFKDPKRLYCKNGGFLRHPDGRVGVREKSDPHI 60  
 QY 61 KLGQAEERGVVSTKGYCANRYLANKKEGRILASKCVTDECFPERLESNNYNTYRSKY 120  
 DB 61 KLGQAEERGVVSTKGYCANRYLANKKEGRILASKCVTDECFPERLESNNYNTYRSKY 120  
 QY 121 SSWYVALKRTGYKLGPGTGPQKALFLPMSAKS 155  
 DB 121 SSWYVALKRTGYKLGPGTGPQKALFLPMSAKS 155  
 RESULT 3  
 FGFP2\_HUMAN STANDARD; PRT; 155 AA.  
 ID P09038;  
 AC P09038;  
 DT 01-NOV-1988 (Rel. 09, Created)  
 DT 01-NOV-1988 (Rel. 09, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast growth factor) (BFGF) (Prostatropin).  
 GN FGFP2 OR FGFB.  
 OS Homo sapiens (Human).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eumetazoa; Primates; Catarrhini; Hominoidea; Homo.  
 OX NCBI\_TaxID=9606;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87053817; PubMed=3780670;  
 RA Abraham J.A.; Wang J.L.; Tumbolo A.; Mergia A.; Friedman J.;  
 RA Gospodarowicz D.; Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence and genomic organization."  
 RT EMBO J. 5:2523-2528(1986).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87217066; PubMed=3472745;  
 RA Abraham J.A.; Wang J.L.; Tumbolo A.; Mergia A.; Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."  
 RT Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
 RN [3]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87213238; PubMed=3579930;  
 RA Sommer A.; Brewer M.T.; Thompson R.C.; Moscattelli D.; Presta M.;  
 RA Rifkin D.B.;  
 RT "A form of human basic fibroblast growth factor with an extended amino terminus."  
 RT Biochem. Biophys. Res. Commun. 144:543-550(1987).  
 RN [4]

RP SEQUENCE FROM N.A.  
 RX MEDLINE=87162468; PubMed=2435575;  
 RA Kurokawa T.; Sasada R.; Iwane M.; Igarashi K.;  
 RT "Cloning and expression of cDNA encoding human basic fibroblast growth factor."  
 RT FEBS Lett. 213:189-194(1987).  
 RN [5]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=89184522; PubMed=2538817;  
 RA Prats H.; Kaghad M.; Prats A.C.; Klagsbrun M.; Lelias J.M.;  
 RA Liauzun P.; Chalou P.; Tauber J.P.; Amalric F.; Smith J.A.;  
 RA Caput D.;  
 RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons."  
 RT Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
 RN [6]  
 RP SEQUENCE OF 10-35.  
 RX MEDLINE=86275260; PubMed=3722516;  
 RA Gautschi P.; Prater-Schroeder M.; Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors."  
 RT FEBS Lett. 204:203-207(1986).  
 RN [7]  
 RP SEQUENCE OF 10-39.  
 RX MEDLINE=86186784; PubMed=3964259;  
 RA Gimenez-Gallego G.; Conn G.; Hatcher V.B.; Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue."  
 RT Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 RN [8]  
 RP SEQUENCE OF 2-22.  
 RX MEDLINE=87156686; PubMed=2435284;  
 RA Story M.T.; Bach F.; Shimazaki S.; Saese J.; Jacobs S.C.; Lawson R.K.;  
 RT "Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human benign prostatic hyperplastic tissue."  
 RT Biochem. Biophys. Res. Commun. 142:702-709(1987).  
 RN [9]  
 RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).  
 RX MEDLINE=91195367; PubMed=1707542;  
 RA Eriksson A.E.; Couzens L.S.; Weaver L.H.; Matthews B.W.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor."  
 RT Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).  
 RN [10]  
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RX MEDLINE=94004464; PubMed=7691311;  
 RA Eriksson A.E.; Couzens L.S.; Matthews B.W.;  
 RT "Refinement of the structure of human basic fibroblast growth factor at 1.6-A resolution and analysis of presumed heparin binding sites by selenate substitution."  
 RT Protein Sci. 2:1274-1284(1993).  
 RN [11]  
 RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).  
 RX MEDLINE=91195368; PubMed=1849658;  
 RA Zhang J.; Couzens L.S.; Barr P.J.; Sprang S.R.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor, a structural homolog of Interleukin 1 beta."  
 RT Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).  
 RN [12]  
 RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RX MEDLINE=9211151; PubMed=1769963;  
 RA Ago H.; Kitagawa Y.; Fujishima A.; Matsumura Y.; Katsube Y.;  
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A resolution."  
 RT J. Biochem. 110:360-363(1991).  
 RN [13]  
 RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RX MEDLINE=91095983; PubMed=1702556;  
 RA Zhu X.; Komiyama H.; Chirino A.; Faham S.; Fox G.M.; Arakawa T.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth factors."  
 RT Science 251:90-93(1991).

```

RN (14)
RP STRUCTURE BY NMR.
RX MEDLINE=97040521; PubMed=8885834;
RA Moy F.J., Sedon A.P., Boehlen P., Powers R.;
RT "High-resolution solution structure of basic fibroblast growth factor
RT determined by multidimensional heteronuclear magnetic resonance
RT spectroscopy";
RL Biochemistry 35:13552-13561(1996).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL, M17599; AAA52534.1; ALT_INIT.
DR EMBL, X04431; CAA28027.1; -.
DR EMBL, X04432; CAA28028.1; -.
DR EMBL, X04433; CAA28029.1; -.
DR EMBL, M27968; AAA52448.1; -.
DR EMBL, J04513; AAA52533.1; ALT_INIT.
DR PIR, A25824; A25824.
DR PIR, A26642; A26642.
DR PIR, B24243; B24243.
DR PIR, B24301; B24301.
DR PIR, B32878; B32878.
DR PIR, S00297; S00297.
DR PDB, 2EGF; 15-APR-92.
DR PDB, 4FGF; 15-JUL-93.
DR PDB, 1FGA; 15-JUL-93.
DR PDB, 1BFC; 03-APR-96.
DR PDB, 1BFB; 03-APR-96.
DR PDB, 1BFF; 16-JUN-97.
DR PDB, 1BRG; 31-JAN-94.
DR PDB, 2BFH; 30-APR-94.
DR PDB, 1BLA; 08-NOV-96.
DR PDB, 1BLD; 08-NOV-96.
DR Genew; HGNC:3676; FGF2.
DR MIM, 134920; -.
DR InterPro; IPR002209; HB/F growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF, 1.
DR PRINTS; PR00262; IL1HBGF.
DR Prodom; PD000831; HB/F growthfact; 1.
DR SMART; SMO0442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW 3D-structure.
FT PROPEP 1 9
FT CHAIN 1 155
FT SITE 46 48 HEPARIN-BINDING GROWTH FACTOR 2.
FT SITE 88 90 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 27 31
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT STRAND 30 34
FT STRAND 35 38
FT STRAND 39 43
FT STRAND 43 46
FT STRAND 45 46
FT STRAND 49 52
FT STRAND 55 56
FT HELIX 58 60
FT STRAND 62 66
FT TURN 69 70

```

```

FT STRAND 71 76
FT TURN 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110
FT STRAND 111 117
FT TURN 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 132 133
FT STRAND 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 152

Query Match
Best Local Similarity 98.7%; Score 817; DB 1; Length 155;
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLYCNGGFFLRHPDGRVGVREKSDPHI 60
DB 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLYCNGGFFLRHPDGRVGVREKSDPHI 60
QY 61 KIQLOAEEGVVSIKVCANRYLAKEDGRLLAKSCVTDCEFFERLBSNNYTRSRKY 120
DB 61 KIQLOAEEGVVSIKVCANRYLAKEDGRLLAKSCVTDCEFFERLBSNNYTRSRKY 120
QY 121 SSMYVALKRTGQYKPGPKPGQKAILFLPMGAKS 155
DB 121 TSMYVALKRTGQYKPGPKPGQKAILFLPMGAKS 155

RESULT 4
FGF2_RAT STANDARD; PRT; 154 AA.
ID FGF2_RAT
AC P13109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (basic fibroblast
DE growth factor) (BFGF) (Proctactropin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxId=10116;
RN (1)
RP SEQUENCE FROM N.A.
RC STRAIN=Sprague-Dawley; TISSUE=Ovary;
RX MEDLINE=89061721; PubMed=3196337;
RA Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT Complementary DNA cloning and sequencing of rat ovarian basic
RT fibroblast growth factor and tissue distribution study of its mRNA.;
RL Biochem. Biophys. Res. Commun. 157:256-263(1988).
RN (2)
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=88262516; PubMed=3387229;
RA Kurokawa T., Seno M., Igarashi K.;
RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:5201-5201(1988).
RN (3)
RP SEQUENCE OF 1-28 FROM N.A.
RC STRAIN=Sprague-Dawley; TISSUE=Testis;
RX MEDLINE=97200905; PubMed=9048734;
RA Pasumathil K.B.S., Yin Y., Cattini P.A.;
RT "Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";

```

RL J. Neurochem. 68:898-908(1997).

RN (4) SEQUENCE OF 35-154 FROM N.A.

RP STRAIN=Sprague-Dawley; TISSUE=Brain;

RC MEDLINE=92329546; PubMed=1378302;

RX El-Husseini A.E.-D., Paterson J.A., Myal Y., Shiu R.P.C.;

RA "PCR detection of the rat brain basic fibroblast growth factor (bFGF)

RT mRNA containing a unique 3' untranslated region."

RL Biochim. Biophys. Acta 1131:314-316(1992).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation-

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>

CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC -----

CC EMBL: M22427; AAA41210.1; -

CC EMBL: X07285; CAA30265.1; -

CC EMBL: U78079; AAC53225.1; -

CC EMBL: X61697; CAA43863.1; -

CC PIR: S00876; S00876.

CC PIR: A31674; A31674.

CC HSSP: P09038; 1BFF.

CC InterPro: IPR002209; HB/F.growthfact.

CC InterPro: IPR002348; IL1\_HBGF.

CC Pfam: PF00167; FGF.1.

CC PRINTS: PR00262; IL1HBGF.

CC ProDom: PD000831; HB/F.growthfact; 1.

CC SMART: SM00442; FGF.1.

CC PROSITE: PS00247; HBGF.FGF.1.

CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.

CC K1 PROPEP 1 9

CC FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.

CC FT BINDING 26 30 HEPARIN (POTENTIAL).

CC FT BINDING 115 118 HEPARIN (POTENTIAL).

CC SO SEQUENCE 154 AA; 17139 MW; 1A0F14FF423D8403 CRC64;

Query Match 96.24; Score 796.5; DB 1; Length 154;

Best Local Similarity 96.88; Pred. No. 8.3e-76;

Matches 150; Conservative 3; Mismatches 1; Indels 1; Gaps 1;

QY 1 MAAGSITTLPLPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHI 60

DB 1 MAAGSITSLPLPEDGG-CAFPFGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHV 59

QY 61 KLOLAEEGRGVSIKVCANRYLANKEDGRLLASKCVTDECFERLESNNYNTYRSKY 120

DB 60 KLOLAEEGRGVSIKVCANRYLANKEDGRLLASKCVTECEFFERLESNNYNTYRSKY 119

QY 121 SSWYALKRTGQYKLGPTGPGQKAILFLPMSAKS 155

DB 120 SSWYALKRTGQYKLGSGTGPQKAILFLPMSAKS 154

RESULT 5

FGF2 MOUSE STANDARD; PRT; 154 AA.

AC P15655;

DT 01-APR-1990 (Rel. 14, Created)

DT 01-APR-1990 (Rel. 14, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)

DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast

DE growth factor) (BFGF) (Prostatropin).

GN FGF2 OR FGF-2.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

ON NCB1\_TaxID=10090;

OX (1)

RP SEQUENCE FROM N.A.

RX MEDLINE=90201563; PubMed=2318343;

RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;

RT "Isolation of cDNAs encoding four mouse FGF family members and

RT characterization of their expression patterns during embryogenesis."

RL Dev. Biol. 138:454-463(1990).

RN [2]

RP SEQUENCE FROM N.A.

RC STRAIN=C57BL/6J, A/J, and NOD/LtJ; TISSUE=Spleen;

RA Ma R.Z., Teuscher C.;

RL Submitted (May-1998) to the EMBL/GenBank/DBJ databases.

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC -----

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation-

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>

CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC -----

CC EMBL: M30644; AAA37621.1; -

CC EMBL: AF065903; AAC17503.1; -

CC EMBL: AF065904; AAC17504.1; -

CC EMBL: AF065905; AAC17505.1; -

CC PIR: C37360; C37360.

CC HSSP: P09038; 1BFF.

CC MGD: MGI:95516; FGF2.

CC InterPro: IPR002209; HB/F.growthfact.

CC InterPro: IPR002348; IL1\_HBGF.

CC Pfam: PF00167; FGF.1.

CC PRINTS: PR00262; IL1HBGF.

CC ProDom: PD000831; HB/F.growthfact; 1.

CC SMART: SM00442; FGF.1.

CC PROSITE: PS00247; HBGF.FGF.1.

CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.

CC K1 PROPEP 1 9

CC FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.

CC FT BINDING 26 30 HEPARIN (POTENTIAL).

CC FT BINDING 115 118 HEPARIN (POTENTIAL).

CC SO SEQUENCE 154 AA; 17153 MW; 689F67416274388 CRC64;

Query Match 94.48; Score 781.5; DB 1; Length 154;

Best Local Similarity 94.88; Pred. No. 3e-74;

Matches 147; Conservative 4; Mismatches 3; Indels 1; Gaps 1;

QY 1 MAAGSITTLPLPEDGSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHI 60

DB 1 MAAGSITSLPLPEDGG-APFPFGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHV 59

QY 61 KLOLAEEGRGVSIKVCANRYLANKEDGRLLASKCVTDECFERLESNNYNTYRSKY 120

DB 60 KLOLAEEGRGVSIKVCANRYLANKEDGRLLASKCVTECEFFERLESNNYNTYRSKY 119

QY 121 SSWYALKRTGQYKLGPTGPGQKAILFLPMSAKS 155

DB 120 SSWYALKRTGQYKLGSGTGPQKAILFLPMSAKS 154

## RESULT 6

FGF2\_CHICK

ID\_FGF2\_CHICK STANDARD; PRT; 158 AA.

AC P46800;

DT 01-FEB-1996 (Rel. 33, Created)

DT 01-FEB-1996 (Rel. 33, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)

DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast

DE growth factor) (BFGF).

GN FGF2 OR FGF-2.

OS Gallus gallus (Chicken).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;

OC Gallus.

OX NCBI\_TaxID=9031;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE=93246053; PubMed=7683281;

RA Borja A.Z., Zeller R., Weijers C.;

RT "Expression of alternatively spliced bFGF first coding exons and

RT antisense mRNAs during chicken embryogenesis.";

RL Dev. Biol. 157:110-118(1993).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC EMBL; M95707; AAA48617.1; -

DR HSSP; P09038; 1BFF.

DR InterPro; IPR002209; HB/F growthfact.

DR InterPro; IPR002348; IL1\_HBGF.

DR Pfam; PF00167; FGF; 1.

DR PRINTS; PR00262; IL1HBGF.

DR ProDom; PD000831; HB/F\_growthfact; 1.

DR SMART; SM00442; FGF; 1.

DR PROSITE; PS00247; HBGF\_FGF; 1.

KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.

FT PROPEP 1 12

FT CHAIN 13 158

FT BINDING 30 34

FT BINDING 119 122

SQ SEQUENCE 158 AA; 17374 MW; 7B69B684C1F1816 CRC64;

Query Match 93.0%; Score 770; DB 1; Length 158;

Best Local Similarity 93.5%; Pred. No. 4.9e-73;

Matches 144; Conservative 4; Mismatches 6; Indels 0; Gaps 0;

QY 2 AAGSITTLPALPEDGGGAGFPFGHFKDKRLCYKNGGFFLRHDPDGVDRKSDPHK 61

DB 5 AAGSITTLPALPDGGGAGFPFGHFKDKRLCYKNGGFFLRHDPDGVDRKSDPHK 64

QY 62 LQLOAERGVVSIKGVANRYLANKEDGRLLASKCVTDECFPERLSNNNTYRSRKY 121

DB 65 LQLOAERGVVSIKGVANRYLANKEDGRLLASKCVTDECFPERLSNNNTYRSRKY 124

QY 122 SWYVALKRTGQYKLGPKTGPOKAILFLPMSAKS 155

DB 125 DMVVALKRTGQYKLGPKTGPOKAILFLPMSAKS 158

RESULT 7

## FGF2\_MONDO

ID\_FGF2\_MONDO STANDARD; PRT; 156 AA.

AC P46798;

DT 01-FEB-1996 (Rel. 33, Created)

DT 01-FEB-1996 (Rel. 33, Last sequence update)

DT 15-JUN-2002 (Rel. 41, Last annotation update)

DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast

DE growth factor) (BFGF) (Procatropin).

GN FGF2.

OS Monodelphis domestica (Short-tailed grey opossum).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.

OX NCBI\_TaxID=13616;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE=94296558; PubMed=8024698;

RA Kuewatt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;

RT "Characterization of cDNA encoding basic fibroblast growth factor of

RT the marsupial Monodelphis domestica.";

RL DNA Cell Biol. 13:549-554(1994).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS

CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN

CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES

CC AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -

CC the European Bioinformatics Institute. There are no restrictions on its

CC use by non-profit institutions as long as its content is in no way

CC modified and this statement is not removed. Usage by and for commercial

CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

CC EMBL; Z15154; CAA78654.1; ALT\_INIT.

DR HSSP; P09038; 1BFF.

DR InterPro; IPR002209; HB/F growthfact.

DR InterPro; IPR002348; IL1\_HBGF.

DR Pfam; PF00167; FGF; 1.

DR PRINTS; PR00262; IL1HBGF.

DR ProDom; PD000831; HB/F\_growthfact; 1.

DR SMART; SM00442; FGF; 1.

DR PROSITE; PS00247; HBGF\_FGF; 1.

KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.

FT PROPEP 1 9

FT CHAIN 10 156

FT BINDING 28 32

FT BINDING 117 120

SQ SEQUENCE 156 AA; 17303 MW; 7E655FC649BF1209 CRC64;

Query Match 91.6%; Score 758.5; DB 1; Length 156;

Best Local Similarity 92.9%; Pred. No. 7.6e-72;

Matches 145; Conservative 4; Mismatches 6; Indels 1; Gaps 1;

QY 1 MAAGSITTLPALPED-GGGAGFPFGHFKDKRLCYKNGGFFLRHDPDGVDRKSDPH 59

DB 1 MAAGSITTLPALSGDGGGAGFPFGHFKDKRLCYKNGGFFLRHDPDGVDRKSDPH 60

QY 60 IKLQLOAERGVVSIKGVANRYLANKEDGRLLASKCVTDECFPERLSNNNTYRSRKY 119

DB 61 IKLQLOAERGVVSIKGVANRYLANKEDGRLLASKCVTDECFPERLSNNNTYRSRKY 120

QY 120 YSNWYVALKRTGQYKLGPKTGPOKAILFLPMSAKS 155

DB 121 YSNWYVALKRTGQYKLGPKTGPOKAILFLPMSAKS 156

RESULT 8

FGF2\_RABBIT



```

ID  FGF2_RABIT      STANDARD;      PRT;      137 AA.
AC  P48759;
DT  01-FEB-1996 (Rel. 33, Created)
DT  01-FEB-1996 (Rel. 33, Last sequence update)
DT  15-JUN-2002 (Rel. 41, Last annotation update)
DE  Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth
DE  factor) (BFGF) (Proteolipin) (Fragment).
GN  FGF2.
OS  Oryctolagus cuniculus (Rabbit).
OC  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC  Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX  NCBI_TaxID=9986;
RN  [1]
RP  SEQUENCE FROM N.A.
RC  STRAIN=New Zealand white; TISSUE=Smooth muscle;
RA  MEDLINE=93343209; Pubmed=8342599;
RX  Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liao G.;
RT  "Elevated expression of basic fibroblast growth factor in an
RT  immortalized rabbit smooth muscle cell line.";
RL  Am. J. Pathol. 143:518-527(1993).
CC  -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC  IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC  VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC  CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC  -1- SUBUNIT: MONOMER.
CC  -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC  AFGF.
CC  -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC  -----
CC  This SWISS-PROT entry is copyright. It is produced through a collaboration
CC  between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC  the European Bioinformatics Institute. There are no restrictions on its
CC  use by non-profit institutions as long as its content is in no way
CC  modified and this statement is not removed. Usage by and for commercial
CC  entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC  or send an email to license@isb-sib.ch).
CC  -----
DR  EMBL; L12034; AAA31248.1; -.
DR  HSSP; P09038; 1BFF.
DR  InterPro; IPR002209; HB/F_growthfact.
DR  Pfam; PF00167; FGF_1.
DR  ProDom; PD000831; HB/F_growthfact; 1.
DR  SMART; SMO0442; FGF_1.
DR  PROSITE; PS00247; HBGF_FGF_1.
KM  Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT  BINDING 18 22 HEPARIN (POTENTIAL).
FT  BINDING 107 110 HEPARIN (POTENTIAL).
FT  NON_TER 137 137
SQ  SEQUENCE 137 AA; 15418 MW; 0D9E8457B88B8C51 CRC64;

Query Match 88.9%; Score 736; DB 1; Length 137;
Best Local Similarity 99.3%; Pred. No. 1.4e-69;
Matches 136; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 10 PALPEDGSGAAPPFGHFKDPKRLKYNKGFFLRIHPDGVNDGVREKSDPHIKLQQAER 69
DB 1 PALPEDGSGAAPPFGHFKDPKRLKYNKGFFLRIHPDGVNDGVREKSDPHIKLQQAER 60
QY 70 GVSISKGVICANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKYSWYALKR 129
DB 61 GVSISKGVICANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKYSWYALKR 120
QY 130 TGOYKLGPTGPGOKAI 146
DB 121 TGOYKLGPTGPGOKAI 137

RESULT 9
FGF2_XENLA STANDARD; PRT; 155 AA.
AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)

```

```

DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidea; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89058621; Pubmed=3194757;
RA Kimmelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;
RT "The presence of fibroblast growth factor in the frog egg: its role
RT as a natural mesoderm inducer.";
RL Science 242:1053-1056(1988).
RN [2]
RP SEQUENCE OF 95-155 FROM N.A.
RX MEDLINE=88052890; Pubmed=3479265;
RA Kimmelman D., Kirschner M.;
RT "Synergistic induction of mesoderm by FGF and TGF-beta and the
RT identification of an mRNA coding for FGF in the early Xenopus
RT embryo.";
RL Cell 51:869-877(1987).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M18067; AAA49726.1; -.
DR PIR; A29618; A29618.
DR PIR; A40117; A40117.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR SMART; SMO0442; FGF_1.
DR PROSITE; PS00247; HBGF_FGF_1.
KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT CONFLICT 111 111 MISSING (IN REF. 2).
SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;

Query Match 82.7%; Score 685; DB 1; Length 155;
Best Local Similarity 83.9%; Pred. No. 3.3e-64;
Matches 130; Conservative 8; Mismatches 17; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLKYNKGFFLRIHPDGVNDGVREKSDPHI 60
DB 1 MAAGSITLPLPESDEGNTTPSPGFKDPKRLKYNKGFFLRIHPDGVNDGVREKSDPHI 60
QY 61 KIQQAERGVVSIKGVICANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKY 120
DB 61 KIQQAERGVVSIKGVICANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSKY 120
QY 121 SSWYVALKRTGQYKLGPTGPGOKAI 155
DB 121 SSWYVALKRTGQYKLGPTGPGOKAI 155

RESULT 10
FGF1_MESAU STANDARD; PRT; 155 AA.
ID FGF1_MESAU

```



AC P34004;  
 DT 01-FEB-1994 (Rel. 28, Created)  
 DT 01-FEB-1994 (Rel. 28, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF).  
 GN FGFI OR FGF-1.  
 OS Mesocricetus auratus (Golden hamster).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae; Mesocricetus.  
 NC NCB1\_TaxID=10036;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=90270291; PubMed=1693366;  
 RA Hall J.A., Harris M.A., Malerk M., Mansson P.E., Zhou H., Harris S.E.; "Characterization of the hamster DDT-1 cell afGF/HBGF-1 gene and cDNA and its modulation by steroids.";  
 RT J. Cell. Biochem. 43;17-26(1990).  
 RL J. Cell. Biochem. 43;17-26(1990).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC PIR: A60721; A60721.  
 DR HSSP: P05230; 1RMU.  
 DR InterPro: IPR002209; HB/F\_growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR ProDom: PD000831; HB/F\_growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 15  
 FT CHAIN 16 155  
 FT BINDING 24 28  
 FT BINDING 113 116  
 SQ SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;  
 Query Match 51.6%; Score 427.5; DB 1; Length 155;  
 Best Local Similarity 55.4%; Pred. No. 2e-37;  
 Matches 87; Conservative 17; Mismatches 48; Indels 5; Gaps 2;  
 QY 1 MAAGSTTTLPALPEDGSGAAPPFHDPKRLYCKNGGFLLRHPDGRVDGVRKSDPHI 60  
 DB 1 MAGEITTSALTFRN---LPPGNKKKRLKLYCSNGHFLRLPDTVDTGRSDQHI 57  
 QY 61 KIQQAERGVSVIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNVTYSRKY 120  
 DB 58 QQLSAESAGEVYIKGTSTGOYLAMDGLGYSQTPNEBCLFLERLENNHTYTSKKA 117  
 QY 121 S--SWYVALKRTGYKLGPTGPGQKAILFLPM 155  
 DB 118 AENKMFVGLKNGSKCRGPRTHYGQKAILFLPLVSS 154  
 RESULT 11  
 FGF1\_CHICK  
 ID FGF1\_CHICK STANDARD; PRT; 155 AA.  
 AC P19596;  
 DT 01-FEB-1991 (Rel. 17, Created)  
 DT 01-FEB-1996 (Rel. 33, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Alpha-endothelial cell growth factor).  
 GN FGFI OR FGF-1.  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;

OC Gallus.  
 NC NCB1\_TaxID=90311;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=91347925; PubMed=1715259;  
 RA Schurch H., Rissu W.; "Differentiating and mature neurons express the acidic fibroblast growth factor gene during chick neural development.";  
 RT Development 111;1143-1154(1991).  
 RL [2]  
 RP SEQUENCE FROM N.A.  
 RA Martin G.R., Han J.K.;  
 RL Submitted (JUL-1995) to the EMBL/Genbank/DBJ databases.  
 RN [3]  
 RP SEQUENCE OF 22-48.  
 RX MEDLINE=88296438; PubMed=3402441;  
 RA Rissu W., Gautschi-Sova P., Boehlen P.;  
 RT "Endothelial cell growth factors in embryonic and adult chick brain are related to human acidic fibroblast growth factor.";  
 RL EMBO J. 7;959-962(1988).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (see <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL: S63263; AAB19629.1; -;  
 DR EMBL: U31663; AAB80310.1; -;  
 DR EMBL: S63261; AAD13942.1; -;  
 DR PIR: S02639; S02639.  
 DR HSSP: P05230; 2AYM.  
 DR InterPro: IPR002209; HB/F\_growthfact.  
 DR InterPro: IPR002348; IL1\_HBGF.  
 DR Pfam: PF00167; FGF; 1.  
 DR PRINTS: PR00262; IL1HBGF.  
 DR ProDom: PD000831; HB/F\_growthfact; 1.  
 DR SMART: SM00442; FGF; 1.  
 DR PROSITE: PS00247; HBGF\_FGF; 1.  
 KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
 FT PROPEP 1 15  
 FT CHAIN 16 155  
 FT BINDING 22 155  
 FT BINDING 24 28  
 FT BINDING 113 116  
 SQ SEQUENCE 155 AA; 17322 MW; 8EDB7054552B365 CRC64;  
 Query Match 50.7%; Score 419.5; DB 1; Length 155;  
 Best Local Similarity 55.6%; Pred. No. 1.3e-36;  
 Matches 85; Conservative 21; Mismatches 42; Indels 5; Gaps 2;  
 QY 1 MAAGSTTTLPALPEDGSGAAPPFHDPKRLYCKNGGFLLRHPDGRVDGVRKSDPHI 60  
 DB 1 MAGEITTSALTFRG---LPPGNKKKRLKLYCSNGHFLRLPDKVDTGRSDQHI 57  
 QY 61 KIQQAERGVSVIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNVTYSRKY 120  
 DB 58 QQLSAEDVGEVYIKSTAGQYLANDTNGLGYSQTPNEBCLFLERLENNHTYTSKKA 117  
 QY 121 S--SWYVALKRTGYKLGPTGPGQKAILFLPM 151  
 DB 118 ADKMFVGLKNGSKRLGPRTHYGQKAILFLPL 150

RESULT 12  
 FCFL HUMAN STANDARD; PRT; 155 AA.  
 ID FGF1\_HUMAN P05230; P07502;  
 AC 13-AUG-1987 (Rel. 05, Created)  
 DT 13-AUG-1987 (Rel. 05, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (beta-endothelial cell growth factor) (ECGF-beta).  
 DE FGF1 OR FGFA.  
 GN Homo sapiens (Human).  
 OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
 OC NCBI\_TaxId=9606;  
 OK [1]  
 RN SEQUENCE FROM N.A.  
 RX MEDLINE=86261805; PubMed=3523756;  
 RA Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W., O'Brien S.J., Modi W.S., Maciag T., Dronan W.N.;  
 RT "Human endothelial cell growth factor: cloning, nucleotide sequence, and chromosome localization.";  
 RL Science 233:541-545(1986).  
 RN [2]  
 RN SEQUENCE FROM N.A.  
 RC TISSUE=Brain stem;  
 RX MEDLINE=89343957; PubMed=2474753;  
 RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;  
 RT "Cloning of the gene coding for human class I heparin-binding growth factor and its expression in fetal tissues.";  
 RL Mol. Cell. Biol. 9:2387-2395(1989).  
 RN [3]  
 RN SEQUENCE FROM N.A.  
 RC TISSUE=Brain stem;  
 RX MEDLINE=90265618; PubMed=1693186;  
 RA Chiu I.M., Wang W.P., Lehtoma K.;  
 RT "Alternative splicing generates two forms of mRNA coding for human heparin-binding growth factor I.";  
 RL Oncogene 5:755-762(1990).  
 RN [4]  
 RN SEQUENCE FROM N.A.  
 RX MEDLINE=90073637; PubMed=2590193;  
 RA Merz A., Tischer E., Graves D., Tumolo A., Miller J., Gospodarowicz D., Abraham J.A., Shipley G.D., Fides J.C.;  
 RT "Structural analysis of the gene for human acidic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 164:1121-1129(1989).  
 RN [5]  
 RN SEQUENCE FROM N.A.  
 RX MEDLINE=92019819; PubMed=1717925;  
 RA Wang W.P., Quirk D., Balcerzak S.P., Needleman S.W., Chiu I.M.;  
 RT "Cloning and sequence analysis of the human acidic fibroblast growth factor gene and its preservation in leukemia patients.";  
 RL Oncogene 6:1521-1529(1991).  
 RN [6]  
 RN SEQUENCE FROM N.A.  
 RX MEDLINE=92020857; PubMed=1372643;  
 RA Li Y.L., Kha H., Golden J.A., Mischelstein A.A.J., Goetzl E.J., Turk E.J.;  
 RT "An acidic fibroblast growth factor protein generated by alternate splicing acts like an antagonist.";  
 RL J. Exp. Med. 175:1073-1080(1992).  
 RN [7]  
 RN SEQUENCE OF 1-154 FROM N.A.  
 RX MEDLINE=94069734; PubMed=7504343; Frist W.H., Miller G.G.;  
 RA Zhao X.M., Yeoh T.K., Hiebert M.;  
 RT "The expression of acidic fibroblast growth factor (heparin-binding growth factor-1) and cytokine genes in human cardiac allografts and T cells.";  
 RL Transplantation 56:1177-1182(1993).  
 RN [8]  
 RN SEQUENCE OF 1-40 FROM N.A.

RX MEDLINE=90365758; PubMed=2393407;  
 RA Crumley G., Dionne C.A., Jaye M.;  
 RT "The gene for human acidic fibroblast growth factor encodes two upstream exons alternatively spliced to the first coding exon.";  
 RL Biochem. Biophys. Res. Commun. 171:7-13(1990).  
 RN [9]  
 RN SEQUENCE OF 16-155.  
 RX MEDLINE=86296647; PubMed=2427112;  
 RA Harper J.W., Strydom D.J., Lobb R.R.;  
 RT "Human class I heparin-binding growth factor: structure and homology to bovine acidic brain fibroblast growth factor.";  
 RL Biochemistry 25:4097-4103(1986).  
 RN [10]  
 RN SEQUENCE OF 16-155.  
 RX MEDLINE=86295741; PubMed=3527167;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "The complete amino acid sequence of human brain-derived acidic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 138:611-617(1986).  
 RN [11]  
 RN SEQUENCE OF 16-155.  
 RX MEDLINE=87048871; PubMed=3778488;  
 RA Gautschi-Sova P., Mueller T., Boehlen P.;  
 RT "Amino acid sequence of human acidic fibroblast growth factor.";  
 RL Biochem. Biophys. Res. Commun. 140:874-880(1986).  
 RN [12]  
 RN SEQUENCE OF 16-47.  
 RX MEDLINE=86186784; PubMed=3964259;  
 RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors: amino terminal sequences and specific mitogenic activities.";  
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 RN [13]  
 RN SEQUENCE OF 16-49.  
 RX MEDLINE=86275260; PubMed=3732516;  
 RA Gautschi P., Frater-Schroeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from human brain: acidic and basic fibroblast growth factors.";  
 RL FEBS Lett. 204:203-207(1986).  
 RN [14]  
 RN X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).  
 RX MEDLINE=96194129; PubMed=8652550;  
 RA Blaber M., Disalvo J., Thomas K.A.;  
 RT "X-ray crystal structure of human acidic fibroblast growth factor.";  
 RL Biochemistry 35:2086-2094(1996).  
 RN [15]  
 RN STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE=94358885; PubMed=7521397;  
 RA Pineda-Lucena A., Jimenez M.A., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.;  
 RT "H-NMR assignment and solution structure of human acidic fibroblast growth factor activated by inositol hexasulfate.";  
 RL J. Mol. Biol. 242:81-98(1994).  
 RN [16]  
 RN STRUCTURE BY NMR OF 24-155.  
 RX MEDLINE=97107535; PubMed=8950275;  
 RA Pineda-Lucena A., Jimenez M.A., Lozano R.M., Nieto J.L., Santoro J., Rico M., Gimenez-Gallego G.;  
 RT "Three-dimensional structure of acidic fibroblast growth factor in solution: effects of binding to a heparin functional analog.";  
 RL J. Mol. Biol. 264:162-178(1996).  
 RN [17]  
 RN STRUCTURE BY NMR OF 25-155.  
 RX MEDLINE=98387896; PubMed=9719643;  
 RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;  
 RT "Solution structure of acidic fibroblast growth factor bound to 1,3,6-naphthalenesulfonate: a minimal model for the anti-tumoral action of suramin and suradistas.";  
 RL J. Mol. Biol. 281:899-915(1998).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES FBGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyrighted. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL: M1361; AAA79245.1; -  
 DR EMBL: X51943; CAA36206.1; -  
 DR EMBL: M30492; AAA52446.1; -  
 DR EMBL: M30490; AAA52446.1; JOINED.  
 DR EMBL: M30491; AAA52446.1; JOINED.  
 DR EMBL: M60515; AAA51673.1; -  
 DR EMBL: M60516; AAA51673.1; -  
 DR EMBL: M23087; AAA52638.1; -  
 DR EMBL: M23086; AAA52638.1; JOINED.  
 DR EMBL: S67291; AAB29057.2; -  
 DR EMBL: X65778; CAA46661.1; -  
 DR PIR: A23553; A23553.  
 DR PIR: A24243; A24243.  
 DR PIR: A24301; A24301.  
 DR PIR: A24662; A24662.  
 DR PIR: A24820; A24820.  
 DR PIR: A26386; A26386.  
 DR PIR: A33665; A33665.  
 DR PIR: S18217; S18217.  
 DR PDB: 2AFG; 15-OCT-95.  
 DR PDB: 1AXM; 22-APR-98.  
 DR PDB: 2AXM; 22-APR-98.  
 DR PDB: 1RML; 11-NOV-98.  
 DR Genew; HGNC:3665; FGF1.  
 DR MIM; 131220; -  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;  
 DR 3d-structure.  
 KW PROPEP 1 15  
 FT CHAIN 16 155  
 FT MOD\_RES 2 2  
 FT BINDING 24 28  
 FT BINDING 113 116  
 SO SEQUENCE 155 AA; 17460 MW; F586E8BFB09F1580 CRC64;  
 Query Match 50.5%; Score 418.5; DB 1; Length 155;  
 Best Local Similarity 54.8%; Pred. No. 1.7e-36;  
 Matches 86; Conservative 17; Mismatches 49; Indels 5; Gaps 2;  
 QY 1 MAAGSTTLALPEDGSGAFPPGHFDPKRLVCKNGCFRLRHPDRVGVNREKSPHI 60  
 DB 1 MAGEITTFALTLEKFN--LPGNYKKPKLLVCSNGHFLRLPDGTGTRDRSDHI 57  
 QY KLGLOAEERGVSVIKGVCANRYLAMKEDGRLLSKCVTDCFFPERLESNNYNTYRSRKY 120  
 DB 58 QLOLSAEVSEVYIKSTETQOYLAMDIDGLLYSGQTNECLFLERLENNHYNTYISKH 117  
 QY 121 S--SWYVALKRTGYKLGPTGPGQAKILFLPSAKS 155  
 DB 118 AEKNMFVGLKKNKSGCRGPRTHYGOKAILFLPLPVSS 154

ID FGF1 MOUSE STANDARD; PRT; 155 AA.  
 AC P10935;  
 DT 01-JUL-1989 (Rel. 11, Created)  
 DT 01-JUL-1989 (Rel. 11, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast  
 DE growth factor) (AFGF).  
 DE GN FGF1 OR FGF-1 OR FGFA.  
 OS Mus musculus (Mouse), and  
 OS Rattus norvegicus (Rat).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
 OX NCBI\_TaxID=10090, 10116;  
 RN [1]  
 RN SEQUENCE FROM N.A.  
 RC SPECIES=Rat;  
 RX MEDLINE=89240051; PubMed=2470029;  
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;  
 RT "The nucleotide sequence of rat heparin binding growth factor 1  
 RT (HBGF-1)."  
 RL Nucleic Acids Res. 17:2867-2867(1989).  
 RN [2]  
 RN SEQUENCE FROM N.A.  
 RC SPECIES=Mouse;  
 RX MEDLINE=90201563; PubMed=2318343;  
 RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;  
 RT "Isolation of cDNAs encoding four mouse FGF family members and  
 RT characterization of their expression patterns during embryogenesis.";  
 RL Dev. Biol. 138:454-463(1990).  
 RN [3]  
 RN SEQUENCE FROM N.A.  
 RC SPECIES=Mouse;  
 RX MEDLINE=97128312; PubMed=8972905;  
 RA Madadi F., Hackshaw K.V., Chiu I.M.;  
 RT "Cloning and characterization of the mouse Fgf-1 gene.";  
 RL Gene 179:231-236(1996).  
 RN [4]  
 RN SEQUENCE FROM N.A.  
 RC SPECIES=Mouse; STRAIN=BALB/c;  
 RX MEDLINE=97094746; PubMed=8939980;  
 RA Alam K.V., Frostholtm A., Hackshaw K.V., Evans J.E., Rottler A.,  
 RA Chiu I.M.;  
 RT "Characterization of the 18 promoter of fibroblast growth factor 1  
 RT and its expression in the adult and developing mouse brain.";  
 RL J. Biol. Chem. 271:30263-30271(1996).  
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyrighted. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL: X14232; CAA32448.1; -  
 DR EMBL: M30641; AAA37618.1; -  
 DR EMBL: U36459; AAC52969.1; -  
 DR EMBL: U36457; AAC52969.1; JOINED.  
 DR EMBL: U36458; AAC52969.1; JOINED.  
 DR EMBL: U67610; AAC52907.1; -  
 DR PIR: S04147; S04147.  
 DR PIR: D37360; D37360.  
 DR HSSP; P05230; 1RML.  
 DR MGD; MGI:95515; Fgf1.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.

RESULT 13  
 FGF1\_MOUSE

```

DR PRINTS; PRO00262; ILHBGF.
DR PRODEM; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR KW Growth factor; Mlrogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 16 155
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17418 MW; 8880E4FF0FBA4161 CRC64;

Query Match 49.9%; Score 413.5; DB 1; Length 155;
Best Local Similarity 54.1%; Pred. No. 5,6e-36;
Matches 85; Conservative 18; Mismatches 49; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYKNGGFFLRHPDGRVDGVEKSDPHI 60
DB 1 MARGEITTFALTEKEN---LPLGNVKKPKLLYCSNGHFLRILPDGTVDGTRDRSDQHI 57
QY 61 KLOLOAEERGVSIKVCANRYLAMKEDGRLASKCVTDCECFEELESNNNTYRSRKY 120
DB 58 QLOLSAESVGEVYIKGTETGQYLLMDTGLYGSQTPNEBCLFLERLENNHNTYTSKHA 117
QY 121 S--SWYVALKRTGQYKLGPKTGPCKAILFLPMGAKS 155
DB 118 AEKNWFGVLKKNKSCRGPRTHYGQKAILFLPVSS 154

RESULT 14
FGFL_PIG STANDARD; PRT; 152 AA.
ID FGFL_PIG
AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF) (Alpha-endothelial cell growth factor)
DE (Fragment).
DE FGFL OR FGF-1.
GN Sus scrofa (Pig).
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=92062117; PubMed=1719973;
RA Schmidt M., Sharma H.S., Scholt R.U., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast
RT growth factor (AFGF) from porcine heart.";
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RN [2]
RP SEQUENCE OF 22-41.
RX MEDLINE=99231704; PubMed=2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and
RT canine hearts.";
RL Eur. J. Biochem. 181:67-73(1989).
RN [3]
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
RP IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
RP VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
RP CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -1- This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial

```

```

CC entities require a license agreement (see http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; X60317; CAA42869.1; -
DR PIR; S03954; S03954.
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HB/F_growthfact.
DR Pfam; PF00167; FGF; 1.
DR PRODEM; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR KW Growth factor; Mlrogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 >152 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 22 >152 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT CONFLICT 31 31 C -> S (IN REF. 2).
FT CONFLICT 39 39 R -> Y (IN REF. 2).
FT NON_TER 152 152
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 49.8%; Score 412.5; DB 1; Length 152;
Best Local Similarity 54.9%; Pred. No. 7e-36;
Matches 84; Conservative 18; Mismatches 46; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYKNGGFFLRHPDGRVDGVEKSDPHI 60
DB 1 MARGEITTFALTEKEN---LPLGNVKKPKLLYCSNGHFLRILPDGTVDGTRDRSDQHI 57
QY 61 KLOLOAEERGVSIKVCANRYLAMKEDGRLASKCVTDCECFEELESNNNTYRSRKY 120
DB 58 QLOLSAESVGEVYIKGTETGQYLLMDTGLYGSQTPNEBCLFLERLENNHNTYTSKHA 117
QY 121 S--SWYVALKRTGQYKLGPKTGPCKAILFLPM 151
DB 118 AEKNWFGVLKKNKSCRGPRTHYGQKAILFLPL 150

RESULT 15
FGFL_BOVIN STANDARD; PRT; 155 AA.
ID FGFL_BOVIN
AC P03968;
DT 23-OCT-1986 (Rel. 02, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF) (Prostateprolin) (Endothelial cell growth factor
DE beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF
DE II).
DE FGFL OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
GN Bos taurus (Bovine).
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Retina;
RX MEDLINE=98083506; PubMed=3205724;
RA Halley C., Coutois Y., Laurent M.;
RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=Retina;
RX MEDLINE=99078619; PubMed=2849564;
RA Alterio J., Halley C., Brou C., Soussi T., Coutois Y., Laurent M.;
RT "Characterization of a bovine acidic FGF cDNA clone and its
RT expression in brain and retina.";
RL FEBS Lett. 242:41-46(1988).
RN [3]
RP SEQUENCE OF 2-155.

```

RA MEDLINE=87016918; PubMed=533107.  
RX Burgess W.H., Wehman T., Marshak D.R., Fraser B.A., Maciag T.;  
RT "structural evidence that endothelial cell growth factor beta is the  
RT precursor of both endothelial cell growth factor alpha and acidic  
RT fibroblast growth factor.";  
RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).  
RN [4]  
RX MEDLINE=87026586; PubMed=3768327.  
RX Crabbs J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D.,  
RA Bordoli R.S., McKeenan W.L.;  
RT "Complete primary structure of prostatropin, a prostate epithelial  
RT cell growth factor.";  
RL Biochemistry 25:4988-4993(1986).  
RN [5]  
RX MEDLINE=87026586; PubMed=4071057;  
RX Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candelore M.,  
RA Disalvo J., Thomas K.;  
RT "Grain-derived acidic fibroblast growth factor: complete amino acid  
RT sequence and homologues.";  
RL Science 230:1385-1388(1985).  
RN [6]  
RP SEQUENCE OF 16-44, AND COMPOSITION.  
RX MEDLINE=86055750; PubMed=4065099;  
RX Beehlen P., Esch F., Baird A., Gospodarowicz D.;  
RT "Acidic fibroblast growth factor (FGF) from bovine brain:  
RT amino-terminal sequence and comparison with basic FGF.";  
RL EMBO J. 4:1951-1956(1985).  
RN [7]  
RP SEQUENCE OF 16-56 FROM N.A.  
RX MEDLINE=86261806; PubMed=2425435;  
RA Abraham J.A., Margia A., Whang J.L., Tumolo A., Friedman J.,  
RA Hierlird K.A., Gospodarowicz D., Fiddes J.C.;  
RT "Nucleotide sequence of a bovine clone encoding the angiogenic  
RT protein, basic fibroblast growth factor.";  
RL Science 233:545-548(1986).  
RN [8]  
RP SEQUENCE OF 16-45.  
RX MEDLINE=89231704; PubMed=2714282;  
RA Ounkler W., Maasberg M., Bernotat-Danilewski S., Luethje N.,  
RA Sharma H.S., Schaper W.;  
RT "Isolation of heparin-binding growth factors from bovine, porcine and  
RT canine hearts.";  
RL Eur. J. Biochem. 181:67-73(1989).  
RN [9]  
RP SEQUENCE OF 1-18 FROM N.A.  
RA Philippe J.M., Renaud F., Desset S., Laurent M.;  
RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.  
RN [10]  
X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
RX MEDLINE=91095983; PubMed=1702556;  
RX Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
RA Han B.T., Rees D.C.;  
RT "Three-dimensional structures of acidic and basic fibroblast growth  
RT factors.";  
RL Science 251:90-93(1991).  
CC CC - FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
CC CC - SUBUNIT: MONOMER.  
CC CC - MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
CC THAN DOES bFGF.  
CC CC - SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC -----  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
CC the European Bioinformatics Institute. There are no restrictions on its  
CC use by non-profit institutions as long as its content is in no way  
CC modified and this statement is not removed. Usage by and for commercial  
CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>  
CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

DR	EMBL; M13439; AAA30516.1; -	
DR	EMBL; X13221; CAA33160.1; -	
DR	EMBL; X14032; CAA33192.1; -	
DR	EMBL; M35608; AAA30517.1; -	
DR	EMBL; X66446; CAA47063.1; -	
DR	EMBL; M97660; AAA30563.1; -	
DR	EMBL; M97661; AAA30564.1; -	
DR	PIR; A01385; GKBOA.	
DR	PIR; A25043; A25043.	
DR	PIR; B25043; B25043.	
DR	PIR; C25043; C25043.	
DR	PIR; A24477; A24477.	
DR	PIR; B24663; B24663.	
DR	PDB; 1BAK; 3I-OCT-93.	
DR	PDB; 1AFC; 3I-OCT-93.	
DR	InterPro; IPR002209; HB/F_growthfact.	
DR	InterPro; IPR002348; IL1_HBGF.	
DR	Pfam; PF00167; FGF_1.	
DR	PRINTS; PR00262; IL1HBGF.	
DR	ProDom; PD000831; HB/F_growthfact; 1.	
DR	SMART; SMO0442; FGF_1.	
DR	PROSITE; PS00247; HBFG_FGF_1.	
KM	Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation; 3D-structure.	
FT	PROPER	1 15
FT	CHAIN	2 155
FT	CHAIN	16 155
FT	CHAIN	22 155
FT	MOD_RSS	2 2
FT	BINDING	24 28
FT	BINDING	113 116
FT	STRAND	27 31
FT	TURN	32 34
FT	STRAND	37 40
FT	TURN	42 43
FT	STRAND	46 49
FT	HELIX	55 57
FT	STRAND	59 61
FT	STRAND	69 69
FT	STRAND	71 73
FT	STRAND	79 82
FT	TURN	84 85
FT	STRAND	87 91
FT	HELIX	96 98
FT	STRAND	100 100
FT	STRAND	103 104
FT	TURN	106 107
FT	STRAND	110 111
FT	STRAND	113 114
FT	TURN	116 121
FT	STRAND	123 123
FT	STRAND	126 126
FT	TURN	128 129
FT	STRAND	132 132
FT	STRAND	134 134
FT	HELIX	135 137
FT	TURN	140 141
FT	TURN	144 145
FT	STRAND	147 150
SO	SEQUENCE	155 AA; 17493 MW; F636641F18P9BFD CRC64;
QY	Query Match	48.6%; Score 402.5; DB 1; Length 155;
Db	Best Local Similarity	52.9%; Pred. No. 7.8e-35;
	Matches 83; Conservative	20; Mismatches 49; Indels 5; Gaps 2;
QY	1 MAAGSTTLPALPEDGSGAPPGHFKDPKRLYCKNGGFFLRIHPDGVDGVREKSDPHI 60	
Db	1 MAEGTTFTLTEKEN--LPLGNVKKPKLLYCSNGGYFLRIIDGTVDGDKRSDDHI 57	
QY	KLQLQAERGIVSYISGVCANRYLANKEGRLLASGCVTDECGFFFRLESNNNTYTRSKY 120	

Tue Dec 17 11:00:50 2002

us-09-886-856-6.rsp

Page 13

Db 58 QLOLCASIGEVYIKSTETGQFLAMDTGLLYGSQTPNECLFLERLENNHYNTYISKH 117

OY 121 SS--WYVALKRTGQYKLGPKTGPGQKAILFLPMASAKS 155

Db 118 AERKMFVGLKKNRSLGPRTHFGOKAILFLPLPVSS 154

Search completed: December 16, 2002, 17:56:54  
Job time : 9.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OW protein - protein search, using sw model

Run on: December 16, 2002, 17:54:31 ; Search time 26 Seconds  
(without alignments)

1228.358 Million cell updates/sec

Title: 'US-09-886-856-6

Perfect score: 828  
Sequence: 1 MAASITLPLALPEDGSGA.....GPKTGQKAILFLMSAKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database :

1: SP\_ARCHAEA:\*  
2: SP\_BACTERIA:\*  
3: SP\_FUNGI:\*  
4: SP\_HUMAN:\*  
5: SP\_INVERTEBRATE:\*  
6: SP\_MAMMAL:\*  
7: SP\_MHC:\*  
8: SP\_ORGANELLE:\*  
9: SP\_PHAGE:\*  
10: SP\_PLANT:\*  
11: SP RODENT:\*  
12: SP\_VIRUS:\*  
13: SP\_VERTEBRATE:\*  
14: SP\_UNCLASSIFIED:\*  
15: SP\_VIRINE:\*  
16: SP\_BACTERIAP:\*  
17: SP\_ARCHAEP:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	817	98.7	196	4	P78443
2	766	92.5	153	11	O925A3
3	740	89.4	170	11	O60487
4	702	84.8	155	13	O90Y92
5	693	83.7	130	6	O77767
6	621	75.0	155	13	O8QFR9
7	576	69.6	111	6	O9BDX1
8	572	69.1	108	6	O9N1S7
9	565	68.2	125	13	O98TDB
10	488	58.9	109	11	O925A1
11	484	58.5	112	11	O925A2
12	480.5	58.0	146	13	O07659
13	479	57.9	101	13	P79706
14	460	55.6	87	6	O8MMP4
15	342	41.3	76	6	O9NOV2
16	328	39.6	114	4	Q16443

17	328	39.6	114	4	O00527	O00527 homo sapien
18	300	36.2	106	6	O9N1S8	O9N1S8 capreolus c
19	246	29.7	196	13	O9YH31	O9YH31 notophthalm
20	246	29.7	208	11	O8R515	O8R515 ratus norv
21	242	29.2	124	13	O90X05	O90X05 ambystoma m
22	237	28.6	245	11	O8R5L9	O8R5L9 ratus norv
23	233	28.1	195	11	O8R5L6	O8R5L6 ratus norv
24	228	27.5	206	13	O9YGP8	O9YGP8 oncorhynch
25	221	26.7	111	13	O90X01	O90X01 ambystoma m
26	216.5	26.1	201	13	O8QCS9	O8QCS9 ambystoma m
27	215	26.0	208	6	O9SL12	O9SL12 sus scrofa
28	210	25.4	191	13	O9DFC9	O9DFC9 brachydanio
29	207	25.0	208	13	O9PYV1	O9PYV1 xenopus lae
30	207	25.0	212	11	O9ESL9	O9ESL9 mus musculu
31	205.5	24.8	207	11	O9ESL8	O9ESL8 mus musculu
32	205.5	24.8	207	11	O9ER05	O9ER05 mus musculu
33	203	24.5	208	6	O9SK97	O9SK97 macaca fasc
34	203	24.5	212	11	O9EST9	O9EST9 ratus norv
35	202.5	24.5	212	13	O42407	O42407 gallus gall
36	198.5	24.0	301	5	O8T8A3	O8T8A3 ciona savig
37	195.5	23.6	134	13	O90X03	O90X03 ambystoma m
38	194.5	23.5	213	6	O9N1B8	O9N1B8 ovis aries
39	193	23.3	208	4	O96P59	O96P59 homo sapien
40	191	23.1	62	6	O8SP12	O8SP12 equus cabal
41	191	23.1	162	11	O8V179	O8V179 ratus norv
42	188	22.7	112	13	O90XP9	O90XP9 ambystoma m
43	187	22.6	153	6	O8SQ75	O8SQ75 canis faml
44	186.5	22.5	186	6	O9SL47	O9SL47 mustela vis
45	186.5	22.5	237	13	O91A16	O91A16 gallus gall

## ALIGNMENTS

RESULT 1  
ID P78443 PRELIMINARY: PRT: 196 AA.  
AC P78443;  
DT 01-MAY-1997 (TEMBLrel. 03, Created)  
DT 01-MAY-1997 (TEMBLrel. 03, Last sequence update)  
DT 01-JUN-2002 (TEMBLrel. 21, Last annotation update)  
DE 21 kDa basic fibroblast growth factor (BFGF).  
GN BGF2.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxId=9606;  
RP [1]  
RP MEDLINE=89184522; PubMed=2538817;  
RX Prates H., Kagnad M., Prates A.C., Klagsbrun M., Leillas J.M.,  
RA Lianzun P., Chalou P., Tauber J.P., Amalric F., Smith J.A., Caput D.:  
RT "High molecular mass forms of basic fibroblast growth factor are  
RT initiated by alternative CUG codons."  
RT Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RL [2]  
RN SEQUENCE OF 81-168 FROM N.A.  
RP MEDLINE=93038590; PubMed=1417798;  
RX Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,  
RA Thomas E.J.;  
RT "Reverse transcription with nested polymerase chain reaction shows  
RT expression of basic fibroblast growth factor transcripts in human  
RT granulosa and cumulus cells from in vitro fertilisation patients."  
RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).  
DR EMBL: J04513; AA05253.1; -.  
DR EMBL: S47380; AA013853.1; -.  
DR HSSP: P09038; 1BP.  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR InterPro: IPR002348; IL1\_HBGF.  
DR Pfam: PF00167; FGF\_1.  
DR PRINTS: PR00262; IL1HBGF.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
DR SMART: SM00442; FGF, 1.

DR PROSITE; PS00247; HBSGF FGF; 1.  
SQ SEQUENCE 196 AA; 21203 MW; DBS4447137E60343 CRC64;  
Query Match 98.7%; Score 817; DB 4; Length 196;  
Best Local Similarity 98.7%; Pred. No. 6.7e-81;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 1 MAGSITTLPALPEDGSGAFPPGHRKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 42 MAGSITTLPALPEDGSGAFPPGHRKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 101

OY 61 KLOLOAEEGVVSIKVCANRYLAMKEDGRLASKCVTECEFFERLESNNVTYSRKY 120  
DB 102 KLOLOAEEGVVSIKVCANRYLAMKEDGRLASKCVTECEFFERLESNNVTYSRKY 161

OY 121 SSMYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
DB 162 SSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 196

RESULT 2  
ID O925A3 PRELIMINARY; PRT; 153 AA.  
AC O925A3;  
DT 01-DEC-2001 (TREMBLrel. 19, Created)  
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE Fibroblast growth factor 2.  
GN FGF2.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxId=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN=FVB/N;  
RA Dicks R.P., Griep A.E.;  
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are expressed in mouse embryos."  
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AY027551; AK52308.1; -  
DR InterPro: IPR002209; HB/F\_growthfact.  
DR Pfam: PF00167; FGF; 1.  
DR ProDom: PD000831; HB/F\_growthfact; 1.  
SQ SEQUENCE 153 AA; 17024 MW; AD8163CD8FA2FPAAB CRC64;

Query Match 92.5%; Score 766; DB 11; Length 153;  
Best Local Similarity 94.2%; Pred. No. 1.7e-75;  
Matches 146; Conservative 4; Mismatches 3; Indels 2; Gaps 2;

OY 1 MAGSITTLPALPEDGSGAFPPGHRKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAGSITTLPALPEDGGA-AFPFGHRKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHV 59

OY 61 KLOLOAEEGVVSIKVCANRYLAMKEDGRLASKCVTECEFFERLESNNVTYSRKY 120  
DB 60 KLOLOAEEGVVSIKVCANRYLAMKEDGRLASKCVTECEFFERLESNNVTYSRKY 118

OY 121 SSMYVALKRTGYKLGPKTGPQKAILFLPMSAKS 155  
DB 119 SSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 153

RESULT 3  
ID O60487 PRELIMINARY; PRT; 170 AA.  
AC O60487;  
DT 01-NOV-1996 (TREMBLrel. 01, Created)  
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE Fibroblast growth factor 2 (FGF-2) (Fibroblast growth factor, basic) (BFGF) (Heparin-binding growth factor 2) (HBSGF-2) (Prostatropin) (Prostatic growth factor) (Fragments).  
DE

GN FGF2.  
OS Cavia porcellus (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Hystriognathi; Caviidae; Cavia.  
OX NCBI\_TaxId=10141;  
RN [1]  
RP SEQUENCE OF 53-170 FROM N.A.  
RC TISSUE=PROSTATE;  
RA Ricciardelli C.;  
RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.  
RN [2]  
RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.  
RX MEDLINE=89273588; PubMed=2730645;  
RA Sommer A., Moscatelli D., Rifkin D.B.;  
RT "An amino-terminally extended and post-translationally modified form of a 25KD basic fibroblast growth factor."  
RL Biochem. Biophys. Res. Commun. 160:1267-1274 (1989).  
RN [3]  
RP PARTIAL SEQUENCE, AND METHYLATION.  
RX MEDLINE=91322114; PubMed=1713785;  
RA Burgess W.H., Bitzik J., Mehlman T., Quarto N., Rifkin D.B.;  
RT "Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor."  
RL Cell Regul. 2:87-93 (1991).  
RN [4]  
RP CHARACTERIZATION.  
RX TISSUE=BRAIN;  
RA MEDLINE=97289686; PubMed=3475702;  
RT Moscatelli D., Joseph-Binding protein from guinea pig brain is a high molecular weight form of basic fibroblast growth factor."  
RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782 (1987).  
RN [5]  
RP FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
RN [6]  
RP SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARIN SULFATE (BY SIMILARITY).  
RN [7]  
RP ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS, 18 KDA AND 25 KDA (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION INITIATION SITES. BOTH FORMS ARE ACTIVE.  
RN [8]  
RP -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).  
RN [9]  
RP -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
RN [10]  
RP CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF PARTIAL AMINO-ACID SEQUENCING.  
RN [11]  
RP EMBL; L75974; AAA85394.1; ALT\_FRAME.  
RN [12]  
RP HSP; P09038; 1BA.  
RN [13]  
RP InterPro: IPR002209; HB/F\_growthfact.  
RN [14]  
RP InterPro: IPR002348; ILL HBSGF.  
RN [15]  
RP PRINTS; PR00262; ILLHBSGF.  
RN [16]  
RP ProDom: PD000831; HB/F\_growthfact; 1.  
RN [17]  
RP SMART; SM00442; FGF; 1.  
RN [18]  
RP PROSITE; PS00247; HBSGF FGF; 1.  
RN [19]  
RW Growth factor; Mitogen; Vascularization; Heparin-binding;  
KW Alternative initiation; Methylation; Phosphorylation;  
KW Developmental protein.  
RN [20]  
FT NON\_TER 1  
FT NON\_CONS 15  
FT CHAIN <1 170  
FT CHAIN 22 170  
FT INIT MET 22 22  
FT DOMAIN 11 14  
FT NON\_CONS 50 51  
FT SITE 61 63  
FT SITE 103 105  
FT BINDING 50 51  
FT BINDING 105 105

25 KDA BASIC FIBROBLAST GROWTH FACTOR.  
18 KDA BASIC FIBROBLAST GROWTH FACTOR.  
FOR 18 KDA FORM.  
POLY-ALA.  
CELL ATTACHMENT SITE (POTENTIAL).  
CELL ATTACHMENT SITE (POTENTIAL).  
HEPARIN (BY SIMILARITY).  
HEPARIN (BY SIMILARITY).



```

FT BINDING 143 159 HEPARIN (BY SIMILARITY).
FT MOD_RES 4 4 METHYLATION (MONO- OR DI-).
FT MOD_RES 6 6 METHYLATION (MONO- OR DI-).
FT MOD_RES 8 8 METHYLATION (MONO- OR DI-).
FT MOD_RES 88 88 METHYLATION (BY SIMILARITY).
FT MOD_RES 136 136 PHOSPHORYLATION (BY SIMILARITY).
SQ SEQUENCE 170 AA; 18354 MW; F36BDC7365FE8E CRC64;

Query Match 89.4%; Score 740; DB 11; Length 170;
Best Local Similarity 91.6%; Pred. No. 1.3e-72;
Matches 142; Conservative 2; Mismatches 5; Indels 6; Gaps 1;

QY 1 MAAGSITLPALEPGDGGAPPGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHI 60
DB 22 MAAGSITLPALEPGDGGAPPGHFKDP-----NGGFFLRHPDGRVGVREKSDPHI 75
QY 61 KLOLAEEERGVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
DB 76 KLOLAEEERGVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 135
QY 121 SSMYVALKRTGOYKLGPKTGPQGXILFLPMSAKS 155
DB 136 SSMYVALKRTGOYKLGPKTGPQGXILFLPMSAKS 170

RESULT 4
Q09Y92 PRELIMINARY; PRT; 155 AA.
ID Q09Y92;
AC Q09Y92;
DT 01-DEC-2001 (TREMblrel. 19, Created)
DT 01-DEC-2001 (TREMblrel. 19, Last sequence update)
DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)
DE Fibrinolytic growth factor-2.
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Susaki K., Nakamura K., Chiba C., Saito T.;
RT "Expression of FGF2 during newt retinal development and
RT regeneration."
RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB064664; BAB63249.1;
DR InterPro: IPR00209; HB/F_growthfact.
DR Pfam; PF00167; FGF, 1.
DR PRODOM; PD000831; HB/F_growthfact; 1.
DR PROSITE; PS00247; HBGF_FGF; UNKNOWN; 1.
SQ SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;

Query Match 84.8%; Score 702; DB 13; Length 155;
Best Local Similarity 85.8%; Pred. No. 1.6e-68;
Matches 133; Conservative 8; Mismatches 14; Indels 0; Gaps 0;

QY 1 MAAGSITLPALEPGDGGAPPGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHI 60
DB 1 MAAGSITLPALEPGDGGAPPGHFKDPKRLYCKNGGFFLRHPDGRVGVREKSDPHI 60
QY 61 KLOLAEEERGVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
DB 61 KLOLAEEERGVSISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
QY 121 SSMYVALKRTGOYKLGPKTGPQGXILFLPMSAKS 155
DB 121 SSMYVALKRTGOYKLGPKTGPQGXILFLPMSAKS 155

RESULT 5
Q07767 PRELIMINARY; PRT; 130 AA.
ID Q07767;
AC Q07767;
DT 01-NOV-1998 (TREMblrel. 08, Created)

```

```

DT 01-NOV-1998 (TREMblrel. 08, Last sequence update)
DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)
DE Basic fibroblast growth factor (BFGF) (FGF-2) (Heparin-binding growth
DE factor 2) (HBGF-2) (Prostatectropin) (Prostatic growth factor)
DE (Fragment).
GN BFGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
RN [1]
RP SEQUENCE FROM N.A.
RA TROCHTA O.A., JACOBS R.M., LAMARRE J.;
RT "The role of BFGF in canine Hemangiosarcoma."
RT Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROPROTEIC
CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTICANT FOR
CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS
CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST
CC ONE HEPARIN SULFATE (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC EMBL; AF060562; AAC5912.1; -.
CC HSSP; P09038; 1BF.
CC InterPro: IPR002209; HB/F_growthfact.
CC InterPro: IPR002348; IL1_HBGF.
CC Pfam; PF00167; FGF, 1.
CC PRINTS; PR00262; IL1HBGF.
CC PRODOM; PD000831; HB/F_growthfact; 1.
CC SMART; SM00442; FGF, 1.
CC PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Vascularization; Heparin-binding;
CC Phosphorylation; Developmental protein.
CC NON_TER 1
CC SITE 21 23 CELL ATTACHMENT SITE (POTENTIAL).
CC SITE 63 65 CELL ATTACHMENT SITE (POTENTIAL).
CC BINDING 10 11 HEPARIN (BY SIMILARITY).
CC BINDING 65 65 HEPARIN (BY SIMILARITY).
CC BINDING 103 113 HEPARIN (BY SIMILARITY).
CC MOD_RES 48 48 PHOSPHORYLATION (BY SIMILARITY).
CC MOD_RES 96 96 PHOSPHORYLATION (BY SIMILARITY).
CC NON_TER 130
SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match 83.7%; Score 693; DB 6; Length 130;
Best Local Similarity 99.2%; Pred. No. 1.2e-67;
Matches 129; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 26 FKDPRLYCKNGGFFLRHPDGRVGVREKSDPHIKLOLAEEERGVSISIKVCANRYLAM 85
DB 1 FKDPRLYCKNGGFFLRHPDGRVGVREKSDPHIKLOLAEEERGVSISIKVCANRYLAM 60
QY 86 KEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSMYVALKRTGOYKLGPKTGPQGX 145
DB 61 KEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSMYVALKRTGOYKLGPKTGPQGX 120
QY 146 ILFLPMSAKS 155
DB 121 ILFLPMSAKS 130

RESULT 6
Q08QF9 PRELIMINARY; PRT; 155 AA.
ID Q08QF9;
AC Q08QF9;
DT 01-JUN-2002 (TREMblrel. 21, Created)
DT 01-JUN-2002 (TREMblrel. 21, Last sequence update)
DT 01-JUN-2002 (TREMblrel. 21, Last annotation update)

```

```

DE Basic fibroblast growth factor.
GN FG2.
OS Fugu rubripes (Japanese pufferfish) (Takifugu rubripes).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neuteleostei;
OC Acanthomorphi; Acanthopterygii; Percomorphi; Tetraodontiformes;
OC Tetraodontidae; Takifugu.
OX NCBI_TaxID=31033;
RN [1]
RP SEQUENCE FROM N.A.
RA Borchersby M.R.;
RT "Comparative vertebrate genomic sequence analysis based on
RT Fugu rubripes."
RL Thesis (2001); University College London, London, United Kingdom.
DR EMBL; AJ246040; CAD19830.1; -.
SQ SEQUENCE 155 AA; 17113 MW; AEFELDBDC78FBBE CRC64;

Query Match 75.0%; Score 621; DB 13; Length 155;
Best Local Similarity 77.3%; Pred. No. 1.1e-59;
Matches 119; Conservative 4; Mismatches 31; Indels 0; Gaps 0;

QY 1 MAAGSITLPAIPEDGSGAAPPGRHFKDKRLYCKNGGFLEIHPDGRVDSRPSDPII 60
DB 1 MATGGITTLPTSPEDGSGGFPSPGFKOPKRLYCKNGGFLEIRSDGADVGTREKTDPII 60
QY 61 KLOLAERGVVSIKVCANRYLAKMEDRLASKCVTECFPERLESNNNTYRSRKY 120
DB 61 KLOLAOTSVGEVIVIGVCANRYLANRDRRLGCMKRAIDECFLERLESNNNTYRSRKY 120
QY 121 SSWVALKRTGYKLGPKTGPQKAILFLPMSAK 154
DB 121 PMMFVGLTRTGNVKSQTKTGPCOKAILFLPMSAK 154

RESULT 7
Q9BDX1 PRELIMINARY; PRT; 111 AA.
ID Q9BDX1;
AC Q9BDX1;
DT 01-JUN-2001 (Tremblrel. 17, Created)
DT 01-JUN-2001 (Tremblrel. 17, Last sequence update)
DT 01-JUN-2002 (Tremblrel. 21, Last annotation update)
DE Basic fibroblast growth factor (Fragment).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopitheciinae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Sekhon H.S., Keller J.K., Spindel E.R.;
RT "Alterations in collagen and Elastin Gene Expression in Fetal
RT Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A
RT Possible Role of alpha7 Nicotinic Acetylcholine Receptor in Persistent
RT Pulmonary Hypertension."
RL Submitted (MAR-2000) to the EMBL/Genbank/DBJ databases.
DR EMBL; AF251270; AAK37962.1; -.
DR HSSP; P09038; 2EGF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IIL_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IILHBGF.
DR PRODOM; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 111
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match 69.6%; Score 576; DB 6; Length 111;
Best Local Similarity 98.2%; Pred. No. 5.6e-55;
Matches 109; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 43 IHPDGRVDSRPSDPIIKLOLAERGVVSIKVCANRYLAKMEDRLASKCVTECF 102

```

```

DB 1 IHPDGRVDSRPSDPIIKLOLAERGVVSIKVCANRYLAKMEDRLASKCVTECF 60
QY 103 FFERLESNNNTYRSRKYSSWVALKRTGYKLGPKTGPQKAILFLPMSA 153
DB 61 FFERLESNNNTYRSRKYSSWVALKRTGYKLGPKTGPQKAILFLPMSA 111

RESULT 8
Q9N1S7 PRELIMINARY; PRT; 108 AA.
ID Q9N1S7;
AC Q9N1S7;
DT 01-OCT-2000 (Tremblrel. 15, Created)
DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)
DT 01-JUN-2002 (Tremblrel. 21, Last annotation update)
DE Basic fibroblast growth factor (Fragment).
OS Capreolus capreolus (Ree deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;
OC Cervidae; Odocoileinae; Capreolus.
OX NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RA MEDLINE=20532861; PubMed=11078967;
RC TISSUE=TESTIS;
RX Magener A., Blotner S., Goritz F., Fickel U.;
RT "Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus)."
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152587; AAF73226.1; -.
DR HSSP; P09038; 4FGF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IIL_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IILHBGF.
DR PRODOM; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 108
SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match 69.1%; Score 572; DB 6; Length 108;
Best Local Similarity 100.0%; Pred. No. 1.5e-54;
Matches 108; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 42 RIHPDGRVDSRPSDPIIKLOLAERGVVSIKVCANRYLAKMEDRLASKCVTECF 101
DB 1 RIHPDGRVDSRPSDPIIKLOLAERGVVSIKVCANRYLAKMEDRLASKCVTECF 60
QY 102 FFERLESNNNTYRSRKYSSWVALKRTGYKLGPKTGPQKAILFL 149
DB 61 FFERLESNNNTYRSRKYSSWVALKRTGYKLGPKTGPQKAILFL 108

RESULT 9
Q98TD8 PRELIMINARY; PRT; 125 AA.
ID Q98TD8;
AC Q98TD8;
DT 01-JUN-2001 (Tremblrel. 17, Created)
DT 01-JUN-2001 (Tremblrel. 17, Last sequence update)
DT 01-JUN-2002 (Tremblrel. 21, Last annotation update)
DE Fibroblast growth factor-2 (Fragment).
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Mizuno N., Hayashi T., Okamoto M.;
RT "Cynops fibroblast growth factor-2."

```

```

RL Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB049625; BAB0835.1; -
DR HSBP; P09038; 18PF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON TER 1
SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;

Query Match 68.2%; Score 565; DB 13; Length 125;
Best Local Similarity 87.1%; Pred. No. 1e-53;
Matches 108; Conservative 6; Mismatches 10; Indels 0; Gaps 0;

QY 32 LYCKNGGFELIHPDGRVDGVREKSDPHIKLQLQAEERGVSIKGVCANRYLAMKEDGRL 91
DB 2 LYCKNGGFELINSKXVDGAREKSDSYIKQLQAEERGVSIKGVCANRYLAMKEDDRL 61
QY 92 LASKCVTDCEFFERLESNNYNTYRSKXSSWYVALKRTGYKLGPTGPGOKAILFLPM 151
DB 62 MALKWITDECFEERLESNNYNTYRSKXSDPYVALKRTGYKNGSKTGAGOKAILFLPM 121
QY 152 SAKS 155
DB 122 SAKS 125

RESULT 10
Q925A1 PRELIMINARY; PRT; 109 AA.
ID Q925A1
AC Q925A1;
DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)
DE Fibroblast growth factor 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=FVB/N;
RA Dicks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027558; AKS2310.1; -
DR InterPro; IPR002309; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR PROSITE; PS00247; HBGF_FGF; UNKNOWN 1.
SQ SEQUENCE 109 AA; 12388 MW; 61077ADE3303C860 CRC64;

Query Match 58.9%; Score 488; DB 11; Length 109;
Best Local Similarity 97.9%; Pred. No. 2.1e-45;
Matches 94; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 60 IKLQQLAEERGVSIKGVCANRYLAMKEDGRLILASKCVTDCEFFERLESNNYNTYRSRK 119
DB 14 IKLQQLAEERGVSIKGVCANRYLAMKEDGRLILASKCVTDCEFFERLESNNYNTYRSRK 73
QY 120 YSSWYVALKRTGYKLGPTGPGOKAILFLPM SAKS 155
DB 74 YSSWYVALKRTGYKLGSKTGPGOKAILFLPM SAKS 109

RESULT 11

```

```

Q925A2 PRELIMINARY; PRT; 112 AA.
ID Q925A2
AC Q925A2;
DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)
DE Fibroblast growth factor 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=FVB/N;
RA Dicks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027557; AKS2309.1; -
DR InterPro; IPR002309; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR PROSITE; PS00247; HBGF_FGF; UNKNOWN 1.
SQ SEQUENCE 112 AA; 12725 MW; B0057ABE0257CCB CRC64;

Query Match 58.5%; Score 484; DB 11; Length 112;
Best Local Similarity 97.9%; Pred. No. 5.8e-45;
Matches 93; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 61 KLQLQAEERGVSIKGVCANRYLAMKEDGRLILASKCVTDCEFFERLESNNYNTYRSKY 120
DB 18 KLQLQAEERGVSIKGVCANRYLAMKEDGRLILASKCVTDCEFFERLESNNYNTYRSKY 77
QY 121 SSWYVALKRTGYKLGPTGPGOKAILFLPM SAKS 155
DB 78 SSWYVALKRTGYKLGSKTGPGOKAILFLPM SAKS 112

RESULT 12
Q07659 PRELIMINARY; PRT; 146 AA.
ID Q07659
AC Q07659;
DT 01-NOV-1996 (TREMBlrel. 01, Created)
DT 01-NOV-1996 (TREMBlrel. 01, Last sequence update)
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)
DE Fibroblast growth factor.
GN BFGF.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Meljers C.;
RT "Expression of alternatively spliced bfgf first coding exons and
RT antisense mRNAs during chicken embryogenesis."
RL Dev. Biol. 157:110-118(1993).
RN [2]
RP SEQUENCE OF 52-85 FROM N.A.
RX MEDLINE=90382254; PubMed=2401202;
RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;
RT "Fibroblast growth factor during mesoderm induction in the early chick
RT embryo."
RL Development 109:387-393(1990).
DR EMBL; M95706; AAA48616.1; -
DR EMBL; X56804; CA47039.1; -
DR HSBP; P09038; 2BPH.
DR InterPro; IPR002209; HB/F_growthfact.

```

```

DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 146 AA; 16182 MW; A7CB97BCB456E247 CRC64;

Query Match
Best Local Similarity 58.0%; Score 480.5; DB 13; Length 146;
Matches 98; Conservative 8; Mismatches 14; Indels 27; Gaps 2;

QY 9 LPAIPEDGSGAPPPGHPKDKRLKCKNGFFLRHPDGRVDVREKSDPHIKLOQAE 68
DB 27 VPSLSPDGGV-----LMEVRYPDERVSAM-----VKLOQAE 59

QY 69 RGVVISIKGVCANRYLAMEKDEGRLLAKCVTDECFPEELSENNNTYRSRKYSSMYVALK 128
DB 60 RGVVISIKGVSANRFLPAMEKDEGRLLAKCVTDECFPEELSENNNTYRSRKYSDMYVALK 119

QY 129 RTGQYKLGPKTPGOKAILFLPMSAKS 155
DB 120 RTGQYKGPKTGPGOKAILFLPMSAKS 146

RESULT 13
P79706 PRELIMINARY; PRT; 101 AA.
AC P79706;
DT 01-MAY-1997 (TREMBLrel. 03, Created)
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)
DE Basic FGF (Fragment).
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=EMBRYO;
RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
RA Kaneda T.;
RT "Serial expression of the genes in a mesodermallyzing ectoderms of
RT early Cynops gastrula.";
RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
DR EMBL; D89443; BA13958.1; -.
DR HSSP; P09038; 4FGF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 101
SQ SEQUENCE 101 AA; 11907 MW; 7A16C866C1F457A CRC64;

Query Match
Best Local Similarity 57.9%; Score 479; DB 13; Length 101;
Matches 89; Conservative 6; Mismatches 6; Indels 0; Gaps 0;

QY 29 PKRLKCKNGFFLRHIDGRVDVREKSDPHIKLOQAEERGVVISIKVCANRYLAMKED 88
DB 1 PKRLKCKNGGFFLRINDGKVDGAREKSDSYIKLOQAEERGVVISIKVCANRYLAMKED 60

QY 89 GRLLASKCVTDECFPEELSENNNTYRSRKYSSMYVALK 129
DB 61 GRLLAKWITDECFPEELSENNNTYRSRKYSDMYVALK 101

RESULT 14
Q8WMP4

```

```

ID Q8WMP4 PRELIMINARY; PRT; 87 AA.
AC Q8WMP4;
DT 01-MAR-2002 (TREMBLrel. 20, Created)
DT 01-MAR-2002 (TREMBLrel. 20, Last sequence update)
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)
DE Fibroblast growth factor 2 (Fragment).
GN FGF2.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
NCBI_TaxID=9796;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=ENDOMETRIUM;
RA Einspanier R.;
RL Submitted (JUN-2001) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=ENDOMETRIUM;
RA Welter H.;
RL Thesis (2002), Department of Physiology, University of Munich,
RL Freising, Germany.
DR EMBL; AJ319906; CAC86028.1; -.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; UNKNOWN_1.
FT NON_TER 1
FT NON_TER 87
SQ SEQUENCE 87 AA; 10128 MW; 52382DDF0245739E CRC64;

Query Match
Best Local Similarity 55.6%; Score 460; DB 6; Length 87;
Matches 87; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 41 LRHPDGRVDVREKSDPHIKLOQAEERGVVISIKVCANRYLAMKEDGRLLASKCVTDE 100
DB 1 LRHPDGRVDVREKSDPHIKLOQAEERGVVISIKVCANRYLAMKEDGRLLASKCVTDE 60

QY 101 CFFERLESNNNTYRSRKYSSMYVAL 127
DB 61 CFFERLESNNNTYRSRKYSSMYVAL 87

RESULT 15
Q9NOV2 PRELIMINARY; PRT; 76 AA.
AC Q9NOV2;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)
DE Basic fibroblast growth factor (Fragment).
GN BGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=FETAL PLACENTAL ARTERY;
RA Zheng J., Tsol S.C., Magness R.R.;
RL "Growth factor expression in ovine fetal placental artery endothelial
RL cells.";
RT Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF250027; AAF65566.1; -.
DR HSSP; P09038; 4FGF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.

```

DR PRINTS: PR00262; I1HBGF.  
DR ProdDom; PD000831; HB/F\_growthfact; 1.  
DR SMART; SM00442; FGF; 1.  
DR PROSITE; PS00247; HBGF\_FGF; 1.  
FT NON\_TER 1  
FT NON\_TER 76  
SO SEQUENCE 76 AA; 8796 MW; 7D984E2F97453B20 CRC64;  
Query Match 41.3%; Score 342; DB 6; Length 76;  
Best Local Similarity 100.0%; Pred. No. 1e-29;  
Matches 65; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
OY 57 DPHKTLQAEERGVSTIKGYCANRYLANKEDGRLLASKCVTDECFPERLESNNYNTYR 116  
Db 1 DPHKTLQAEERGVSTIKGYCANRYLANKEDGRLLASKCVTDECFPERLESNNYNTYR 60  
OY 117 SRKYS 121  
Db 61 SRKYS 65

Search completed: December 16, 2002, 17:57:54  
Job time : 27 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:52:55 ; Search time 32 Seconds

(without alignments)  
645.433 Million cell updates/sec

Title: 'US-09-886-856-8

Perfect score: 826  
Sequence: 1 MAAGSITLPLALPBDGSSGA.....GSKTGPQKALFLPMSAKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: A\_Geneseq\_101002.\*  
2: /SID2/gcgdata/geneseq/geneseq-emb1/AA1980.DAT.\*  
3: /SID2/gcgdata/geneseq/geneseq-emb1/AA1981.DAT.\*  
4: /SID2/gcgdata/geneseq/geneseq-emb1/AA1982.DAT.\*  
5: /SID2/gcgdata/geneseq/geneseq-emb1/AA1983.DAT.\*  
6: /SID2/gcgdata/geneseq/geneseq-emb1/AA1984.DAT.\*  
7: /SID2/gcgdata/geneseq/geneseq-emb1/AA1985.DAT.\*  
8: /SID2/gcgdata/geneseq/geneseq-emb1/AA1986.DAT.\*  
9: /SID2/gcgdata/geneseq/geneseq-emb1/AA1987.DAT.\*  
10: /SID2/gcgdata/geneseq/geneseq-emb1/AA1988.DAT.\*  
11: /SID2/gcgdata/geneseq/geneseq-emb1/AA1989.DAT.\*  
12: /SID2/gcgdata/geneseq/geneseq-emb1/AA1990.DAT.\*  
13: /SID2/gcgdata/geneseq/geneseq-emb1/AA1991.DAT.\*  
14: /SID2/gcgdata/geneseq/geneseq-emb1/AA1992.DAT.\*  
15: /SID2/gcgdata/geneseq/geneseq-emb1/AA1993.DAT.\*  
16: /SID2/gcgdata/geneseq/geneseq-emb1/AA1994.DAT.\*  
17: /SID2/gcgdata/geneseq/geneseq-emb1/AA1995.DAT.\*  
18: /SID2/gcgdata/geneseq/geneseq-emb1/AA1996.DAT.\*  
19: /SID2/gcgdata/geneseq/geneseq-emb1/AA1997.DAT.\*  
20: /SID2/gcgdata/geneseq/geneseq-emb1/AA1998.DAT.\*  
21: /SID2/gcgdata/geneseq/geneseq-emb1/AA1999.DAT.\*  
22: /SID2/gcgdata/geneseq/geneseq-emb1/AA2000.DAT.\*  
23: /SID2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.\*  
24: /SID2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysts of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	826	100.0	155	8 AAP70301	Sequence of human
2	826	100.0	155	8 AAP94038	Human basic fibrob
3	826	100.0	155	11 AAR05314	Human basic fibrob
4	826	100.0	155	13 AAR22232	bFGF truncated at
5	826	100.0	155	14 AAR40159	Human bFGF peptide
6	826	100.0	155	16 AAR80777	Fibroblast growth
7	826	100.0	155	16 AAR70204	Human bFGF. Homo
8	826	100.0	155	16 AAR70883	FGF-2. Homo sapie
9	826	100.0	155	18 AAR33338	Human fibronectin
10	826	100.0	155	18 AAR19595	Biologically activ

11	826	100.0	155	19 AAY05456	Fibronectin recept
12	826	100.0	155	19 AAW75712	Fibroblast growth
13	826	100.0	155	19 AAW71379	18 kDa form of fib
14	826	100.0	155	19 AAW53023	Fibroblast growth
15	826	100.0	155	20 AAW9380	18 kD isoform of h
16	826	100.0	155	21 AAB10298	Fibroblast growth
17	826	100.0	155	21 AAY96873	Human fibroblast g
18	826	100.0	155	21 AAY96893	Human fibroblast g
19	826	100.0	155	21 AAY90411	Human fibroblast g
20	826	100.0	155	21 AAY90448	Human FGF-2 (bFGF)
21	826	100.0	155	21 AAY32334	Human fibroblast g
22	826	100.0	155	22 AAG65648	Human fibroblast g
23	826	100.0	155	22 AAE11976	Human fibroblast g
24	826	100.0	155	22 AAB85813	Human fibroblast g
25	826	100.0	155	22 AAB99918	Human FGF-2 protei
26	826	100.0	155	22 AAB99918	Human FGF-2 protei
27	826	100.0	155	22 AAG64317	Heart muscle cell
28	826	100.0	155	22 AAG64847	Truncated form of
29	826	100.0	155	22 AAB84597	FGF2 protein. Hom
30	826	100.0	155	22 AAY72909	Human basic fibrob
31	826	100.0	155	22 AAB50274	Human bFGF related
32	826	100.0	155	23 AAB83825	Human fibroblast g
33	826	100.0	155	23 AAE21685	Human FGF-2 protei
34	826	100.0	155	23 AAE18807	Human 155 amino ac
35	826	100.0	155	23 AAU12081	Human fibroblast g
36	826	100.0	155	23 AAU11111	Sequence of human
37	826	100.0	157	8 AAP71085	Leaderless protein
38	826	100.0	158	18 AAW31664	Human basic fibrob
39	826	100.0	158	22 AAU08594	Human basic fibrob
40	826	100.0	158	22 AAG78316	Human fibroblast g
41	826	100.0	158	22 AAU04006	Human bFGF encoded
42	826	100.0	165	11 AAR05787	Recombinant basic
43	826	100.0	210	11 AAR06885	Human basic fibrob
44	826	100.0	210	22 AAB60695	Human fibroblast g
45	826	100.0	210	22 AAB50299	Human fibroblast g

## ALIGNMENTS

RESULT 1	
AA70301	AA70301 standard; Protein; 155 AA.
XX	
XX	AA70301;
XX	
XX	05-JUN-1991 (first entry)
XX	
DE	Sequence of human basic fibroblast growth factor (bFGF).
XX	
XX	Fibroblast growth promoter; mesoderm cell growth promoter;
KW	wound healing.
XX	
XX	Homo sapiens.
OS	
XX	
PH	Key
FT	Peptide
FT	Protein
FT	Location/Qualifiers
FT	1..9
FT	10..155
FT	/note="claimed"
XX	
PN	EP237966-A.
XX	
PD	23-SEP-1987.
XX	
PF	12-MAR-1987; 87EP-0103601.
XX	
PR	29-SEP-1986; 86JP-0231428.
PR	14-MAR-1986; 86JP-0057919.
PR	09-APR-1986; 86JP-0082699.
PR	09-OCT-1986; 86JP-0241053.
XX	
PA	(TAKE ) TAKEDA CHEMICAL IND KK.
XX	

PI Kurokawa T, Sasada R, Iwane M, Igarashi K;  
 XX MPI: 1987-265363/38.  
 DR N-PSDB; AAN70494.  
 XX  
 XX Human basic fibroblast growth factor - produced by recombinant  
 PT DNA techniques, useful for healing wounds, prophylaxis,  
 PT thrombosis and arteriosclerosis treatment, etc.  
 XX  
 PS Disclosure; Fig 1: 38pp; English.  
 XX  
 CC hbFGF is produced using cDNA prep'd from RNA isolated from W138 or  
 CC IMR90 human fibroblasts. hbFGF promotes growth of fibroblasts and  
 CC other mesoderm-derived cells and is useful for promoting healing of  
 CC wounds (eg burns), for prophylaxis and treatment of thrombosis and  
 CC arteriosclerosis, and as a promoter for cell culture.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 100.0%; Score 826; DB 8; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNNTYRSRKY 120  
 DB 61 KLOLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNNTYRSRKY 120  
 QY 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMGAKS 155  
 DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMGAKS 155  
 RESULT 2  
 AAP94038  
 ID AAP94038 standard; protein; 155 AA.  
 XX  
 AC AAP94038;  
 XX  
 DT 25-JUN-1990 (first entry)  
 XX  
 DE Human basic fibroblast growth factor.  
 KW Basic fibroblast growth factor; pUC9-TSFI1; pUC9delH3-PTSF-3.  
 OS Homo sapiens.  
 XX  
 FH Key Location/Qualifiers  
 FT Misc-difference 78 /label=Cys  
 FT /note="replaced by Ser or Ala"  
 FT Misc-difference 96 /label=Cys  
 FT /note="replaced by Ser or Ala"  
 FT Misc-difference 128 /note="replaced by Ser or Glu"  
 FT /label=Lys  
 FT Misc-difference 129 /note="replaced by Ser or Glu"  
 FT /label=Arg  
 FT Misc-difference 138 /note="replaced by Thr"  
 FT /label=Lys  
 FT /note="replaced by Ser"  
 FT Domain 128..138  
 FT /label=heparin-binding domain  
 XX  
 XX BP298723-A.  
 XX  
 XX  
 XX 11-JAN-1989.  
 XX

PF 06-JUL-1988; 88EP-0306158.  
 XX  
 PR 07-JUL-1987; 87US-0070797.  
 XX  
 PA (BIOT-) BIOTECHN RES ASSOC.  
 XX  
 PI Fiddes JC, Abraham JA, Protter A;  
 XX  
 DR MPI: 1989-009785/02.  
 DR N-PSDB; AAN93087.  
 XX  
 XX Recombinant DNA encoding new fibroblast growth factor  
 PT analogues - useful eg for accelerating wound healing and  
 PT to control neovascularisation.  
 XX  
 PS Disclosure; d 1-2; 44pp; English.  
 XX  
 CC DNA encoding the sequence may be mutated to encode an analogue, of human  
 CC basic fibroblast growth factor (bFGF) bFGF-C78/96S, which has reduced  
 CC affinity for heparin. One or more positively-charged AAs in the heparin-  
 CC binding domain (AAs 128-138) are replaced by neutral or negatively-  
 CC charged residues as indicated in the feature table. A recombinant vector  
 CC (pUC9-TSFI1 or pUC9delH3-PTSF-3) conng. the mutated DNA can be used to  
 CC transform bacterial or mammalian host cells for prodn. of the analogue.  
 CC See also AAP94038.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 100.0%; Score 826; DB 10; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNNTYRSRKY 120  
 DB 61 KLOLQAEERGVVSIKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNNTYRSRKY 120  
 QY 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMGAKS 155  
 DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMGAKS 155  
 RESULT 3  
 AAR05314  
 ID AAR05314 standard; protein; 155 AA.  
 XX  
 AC AAR05314;  
 XX  
 DT 10-OCT-1990 (first entry)  
 XX  
 DE Human basic fibroblast growth factor (FGF).  
 KW Fibroblast growth factor; FGF; yeast; ischaemia; ds.  
 OS Synthetic.  
 XX  
 XX WO9005184-A.  
 XX  
 PN 17-MAY-1990.  
 XX  
 PD 03-NOV-1989; 89WO-0004821.  
 PF 04-NOV-1988; 88US-0267408.  
 PR (CHIR-) CHIRON CORP.  
 XX  
 PA Barr PJ;  
 XX  
 PI MPI: 1990-178825/23.  
 DR N-PSDB; AAO04716.  
 DR

```

XX Yeast prodn. of human basic and acidic fibroblast growth factor -
PT with acetylated amino-terminal, useful eg. for creating cell
PT senescence, neuronal regression and cell death.
XX
PS Disclosure; ; p: English.
CC FGF have applications such as in vivo nerve regeneration, wound
CC repair ischaemia and corneal repair. They may also have therapeutic
CC uses in the CNS and PNS in treatment of cell death and neuronal
CC regeneration.
XX
SQ Sequence 155 AA;
Query Match 100.0%; Score 826; DB 11; Length 155;
Best Local Similarity 100.0%; Pred. No. 3.5e-80;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 MAAGSITTLPALPDDGSGAFPPGHFKDPKRLYCKNGGFRLRHDPGRVDGVRKSDPHI 60
DB 1 MAAGSITTLPALPDDGSGAFPPGHFKDPKRLYCKNGGFRLRHDPGRVDGVRKSDPHI 60
QY 61 KLOQAEERGVSTIKVCANRYLAMKEDGRLLASKCVTDECFEFLRLESNNYNTYRSRY 120
DB 61 KLOQAEERGVSTIKVCANRYLAMKEDGRLLASKCVTDECFEFLRLESNNYNTYRSRY 120
QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155
DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155
RESULT 4
AAR22232
ID AAR22232 standard; protein; 155 AA.
XX
AC AAR22232;
XX
DT 23-JUN-1992 (first entry)
XX
DE bFGF truncated at its N-terminus.
XX
KM Basic fibroblast growth factor; adduct; heparin; heparan sulphate;
KM pepsin A; cathepsin D; wounds; burns.
XX
OS Synthetic.
XX
PN WO9202539-A.
XX
PD 20-FEB-1992.
XX
PF 30-JUL-1991; 91WO-EP01428.
XX
PR 02-AUG-1990; 90GB-0017008.
XX
PA (FARM) FARMITALIA C ERBA SRL.
XX
PI Monsan P, Paul F, Betbeder D, Sarmientos P;
XX
DR WPI, 1992-080021/10.
XX
PT Prep'n. of basic fibroblast growth factor - by forming adduct with
PT heparin or heparan sulphate and cleaning with pepsin A or
PT cathepsin D
XX
PS Claim 4; Page 27; 36pp; English.
XX
CC The peptide sequence was deduced from the synthetic DNA sequence
CC prep'd. as described in EP-363675. E. coli cells transformed with the
CC synthetic DNA were lysed and the supernatant purified, giving a
CC 50:50 mixture of a 154 residue bFGF (2-155) having the amino acid
CC sequence of the 155 residue form (Abraham et al., Science, 233, 545-
CC 548, 1986) shown here but without the N-terminal Met; and a 153
CC residue bFGF (3-155). An adduct of bFGF formed with heparin or

```

```

CC heparan sulphate contg. the bFGF 9-10 Leu-Pro bond can be cleaved
CC with pepsin A or cathepsin D to cleave this bond and release a
CC peptide with the N-terminus be deleted up to and including residue
CC 9, sequentially. This cleavage method can be used to obtain a pure
CC form of the 146 amino acid bFGF (10-155) bFGF. The prod. can be used
CC to treat wounds and burns.
CC See also AAR22233.
XX
SQ Sequence 155 AA;
Query Match 100.0%; Score 826; DB 13; Length 155;
Best Local Similarity 100.0%; Pred. No. 3.5e-80;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 MAAGSITTLPALPDDGSGAFPPGHFKDPKRLYCKNGGFRLRHDPGRVDGVRKSDPHI 60
DB 1 MAAGSITTLPALPDDGSGAFPPGHFKDPKRLYCKNGGFRLRHDPGRVDGVRKSDPHI 60
QY 61 KLOQAEERGVSTIKVCANRYLAMKEDGRLLASKCVTDECFEFLRLESNNYNTYRSRY 120
DB 61 KLOQAEERGVSTIKVCANRYLAMKEDGRLLASKCVTDECFEFLRLESNNYNTYRSRY 120
QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155
DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155
RESULT 5
AAR40159
ID AAR40159 standard; peptide; 155 AA.
XX
AC AAR40159;
XX
DT 07-FEB-1994 (first entry)
XX
DE Human bFGF peptide fragment #1.
XX
KM Human; fibronectin; FN; fibroblast cell growth factor; FGF;
KM fusion; cell adhesion; cell growth; anti-aging; cosmetics;
KM wound healing; surgery.
XX
OS Homo sapiens.
XX
PN JP05178897-A.
XX
PD 20-JUL-1993.
XX
PF 05-MAR-1992; 92JP-0083220.
XX
PR 14-OCT-1991; 91JP-0291959.
XX
PA (TAKI) TAKARA SHUZO CO LTD.
XX
DR WPI, 1993-261656/33.
XX
DR N-FSDB; AAQ46943.
XX
PT contg. cell adhesion polypeptide from fibronectin and fibroblast
PT growth factor polypeptide, opt. linked by spacer
XX
PS Disclosure; Page 7; 13pp; Japanese.
XX
CC The sequences given in AAR40158-63 represent human fibronectin (FN)
CC and fibroblast cell growth factor (FGF) fragments which were used in
CC the production of fusion polypeptides which are able to stimulate
CC cell adhesion and cell growth. These fusion peptides may be used
CC for anti-aging cosmetics and in wound healing after surgery.
XX
SQ Sequence 155 AA;
Query Match 100.0%; Score 826; DB 14; Length 155;
Best Local Similarity 100.0%; Pred. No. 3.5e-80;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```



QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCCKNGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCCKNGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOLAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 DB 61 KLOLAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 6  
 AAR80777  
 ID AAR80777 standard; Protein; 155 AA.  
 AC AAR80777;  
 XX  
 DT 13-MAY-1996 (first entry)  
 DE Fibroblast growth factor 2, FGF-2.  
 XX  
 KM Conjugate; fibroblast growth factor; FGF; cytotoxin; saproin; eye;  
 KM cell proliferation; regulation; pterygia; corneal clouding; cancer;  
 KM psoriasis; rheumatoid arthritis.  
 XX  
 OS Homo sapiens.  
 OS  
 PN W09524928-A2.  
 XX  
 PD 21-SEP-1995.  
 XX  
 PF 15-MAR-1995; 95WO-US034448.  
 XX  
 PR 15-MAR-1994; 94US-0213447.  
 PR 15-MAR-1994; 94US-0213446.  
 XX  
 PA (PRIZ-) PRIZM PHARM INC.  
 PI  
 PI Baird JA, Houston LL, Nova MP, Sosnowski BA;  
 XX  
 DR WPI; 1995-336820/43.  
 XX  
 PT New conjugates of growth factor receptor ligand and targeted agent  
 PT - partic. DNA or cytotoxin, used to control cell proliferation in  
 PT the eye, e.g. to prevent growth of pterygia and corneal clouding  
 XX  
 PS Claim 33; Page 141; 204pp; English.  
 PS  
 CC AAR80776-84 are fibroblast growth factors (FGF) FGF-1 to FGF-9  
 CC respectively. DNA encoding these fibroblast growth factors can be  
 CC used to create an FGF/saproin fusion protein. DNA encoding such fusion  
 CC proteins are useful for targeting saproin (a cytotoxin) to a cell  
 CC carrying the FGF receptor. Targeted agents (TA) other than saproin  
 CC which may be used include in partic. DNA encoding a therapeutic protein,  
 CC antisense DNA or other cytotoxic agent. The linker sequence within the  
 CC fusion protein may increase serum stability or intracellular  
 CC availability of the TA. The conjugates of the invention are used to  
 CC inhibit cell proliferation in cells carrying the particular growth  
 CC factor receptor; also when TA is DNA it can be used to deliver this  
 CC to cells (for gene therapy). A specific application is to prevent  
 CC excessive proliferation of epithelial cells, fibroblasts and  
 CC keratinocytes in the anterior eye after surgery, partic. to prevent  
 CC recurrence of pterygia after surgical removal, closure of  
 CC treblectomy after glaucoma surgery and corneal clouding after  
 CC excimer laser treatment. Other conditions which may be treated include  
 CC tumors, restenosis, psoriasis, Dupuytren's contracture, diabetic  
 CC complications, Kaposi's sarcoma and rheumatoid arthritis.  
 CC  
 XX Sequence 155 AA;  
 SQ

Query Match 100.0%; Score 826; DB 16; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCCKNGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCCKNGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOLAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 DB 61 KLOLAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 7  
 AAR70204  
 ID AAR70204 standard; Protein; 155 AA.  
 AC AAR70204;  
 XX  
 DT 21-SEP-1995 (first entry)  
 DE Human bFGF.  
 XX  
 KM Basic fibroblast growth factor; bFGF; blood-brain barrier;  
 KM neuronal precursor cell; neurological agent.  
 XX  
 OS Homo sapiens.  
 OS  
 PN W09507092-A.  
 XX  
 PD 16-MAR-1995.  
 XX  
 PF 11-AUG-1994; 94WO-US091155.  
 XX  
 PR 10-SEP-1993; 93US-0118822.  
 PR 22-DEC-1993; 93US-0171297.  
 XX  
 PA (UYNE-) UNIV NEW JERSEY.  
 PI  
 PI Black IB, Diccoco-Bloom E;  
 XX  
 DR WPI; 1995-123234/16.  
 DR N-PSDB; AA083522.  
 XX  
 PT New conjugates for crossing the blood brain barrier - comprising  
 PT a neurological agent linked to a transport factor comprising at  
 PT least a portion of a growth factor  
 XX  
 PS Disclosure; Fig.1; 53pp; English.  
 PS  
 CC Growth and/or proliferation of neuronal precursor cells in an animal  
 CC is obtained by admin. of a proliferation factor comprising at least  
 CC a portion of a growth factor, e.g. human basic fibroblast growth  
 CC factor, whose sequence is given in AAR70204 and gene in AA083522.  
 CC  
 XX Sequence 155 AA;  
 SQ

Query Match 100.0%; Score 826; DB 16; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCCKNGFFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCCKNGFFLRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLOLAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120  
 DB 61 KLOLAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFFERLESNNYNTYRSRKY 120



KW bone fracture; biologically active; embolism.  
 XX Homo sapiens.  
 XX Key Location/Qualifiers  
 FT Peptide 1..9  
 FT /label= sig\_peptide  
 FT Protein 10..155  
 FT /label= mat\_protein  
 XX  
 PN US5604293-A.  
 XX  
 PD 18-FEB-1997.  
 XX  
 PF 12-SEP-1985; 85US-0775521.  
 XX  
 PR 15-MAY-1987; 87US-0050706.  
 PR 12-SEP-1985; 85US-0775521.  
 PR 16-DEC-1985; 85US-0809163.  
 PR 30-MAY-1986; 86US-0869382.  
 PR 30-MAR-1992; 92US-0860688.  
 PR 01-APR-1994; 94US-0221462.  
 XX  
 PA (SCIO-) SCIOS INC.  
 XX  
 PI Abraham JA, Fiddes JC;  
 XX  
 DR WPI: 1997-234676/21.  
 DR N-PSDB; AAT71231.  
 XX  
 PT New high purity, recombinant human basic fibroblast growth factor -  
 PT for promoting wound healing and treating neurodegenerative  
 PT diseases, suitable for production on large scale  
 XX  
 PS Claim 2; Fig 4; 34pp; English.  
 XX  
 CC AAM19595 is a biologically active recombinant human basic fibroblast  
 CC growth factor (bFGF). The protein is free from all infectious  
 CC impurities, substances that normally accompany it and from  
 CC post-translational modification of Cys residues of native human bFGF.  
 CC Recombinant bFGF is used to promote healing of wounds, bone fractures,  
 CC damaged myocardial tissue etc. and, since it increases neuronal survival  
 CC and promotes neurite outgrowth, may also be used in treatment of  
 CC neurological disorders such as Alzheimer's and Parkinson's diseases. bFGF  
 CC may also be used for detection of specific inhibitors for treatment of  
 CC cell cultures in vitro before transplant and for inducing release of  
 CC tissue plasminogen activator or collagenase, e.g. for treatment of a  
 CC chronic tendency to form embolism. Recombinant bFGF can be produced on a  
 CC large scale.  
 XX  
 SQ Sequence 155 AA;  
 XX  
 Query Match 100.0%; Score 826; DB 18; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 XX  
 QY 1 MAAGSITTLPALPEDEGSGAPPGHFKDPKRLYCKNGGFRLRHPDGRVDGVRKSDPHI 60  
 XX  
 DB 1 MAAGSITTLPALPEDEGSGAPPGHFKDPKRLYCKNGGFRLRHPDGRVDGVRKSDPHI 60  
 XX  
 QY 61 KLOLOAERGVVSIKGVANRYLAKMKEDGRLLASKCVTDECFPERLESNNYNTYRSRY 120  
 XX  
 DB 61 KLOLOAERGVVSIKGVANRYLAKMKEDGRLLASKCVTDECFPERLESNNYNTYRSRY 120  
 XX  
 QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 XX  
 DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 XX  
 RESULT 11  
 AAY05456  
 ID AAY05456 standard; protein; 155 AA.  
 XX

AC AAY05456;  
 XX  
 DT 07-JUL-1999 (first entry)  
 XX  
 DE Fibronectin receptor targeting HIV strain CH-271.  
 XX  
 KW Fibronectin receptor; HIV; infection; therapy.  
 XX  
 OS Unidentified.  
 XX  
 PN JP10029952-A.  
 XX  
 PD 03-FEB-1998.  
 XX  
 PF 16-JUL-1996; 96JP-0185893.  
 XX  
 PR 16-JUL-1996; 96JP-0185893.  
 PR 16-JUL-1996; 96JP-0185893.  
 PR (TAKI) TAKARA SHUZO CO LTD.  
 XX  
 DR WPI: 1998-163674/15.  
 XX  
 PA Control of human immunodeficiency virus infection - using  
 PT composition comprising replication defective HIV vector  
 XX  
 PS Disclosure; Page 17; 24pp; Japanese.  
 XX  
 CC This sequence represents a fibronectin receptor that can be used in  
 CC the method of the invention. The method is for the control of human  
 CC immunodeficiency virus (HIV) infection using a composition which  
 CC comprises a functional substance which participates in the infection of  
 CC HIV. The method is used to control HIV-infection.  
 XX  
 SQ Sequence 155 AA;  
 XX  
 Query Match 100.0%; Score 826; DB 19; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 XX  
 QY 1 MAAGSITTLPALPEDEGSGAPPGHFKDPKRLYCKNGGFRLRHPDGRVDGVRKSDPHI 60  
 XX  
 DB 1 MAAGSITTLPALPEDEGSGAPPGHFKDPKRLYCKNGGFRLRHPDGRVDGVRKSDPHI 60  
 XX  
 QY 61 KLOLOAERGVVSIKGVANRYLAKMKEDGRLLASKCVTDECFPERLESNNYNTYRSRY 120  
 XX  
 DB 61 KLOLOAERGVVSIKGVANRYLAKMKEDGRLLASKCVTDECFPERLESNNYNTYRSRY 120  
 XX  
 QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 XX  
 DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 XX  
 RESULT 12  
 AAM75712  
 ID AAM75712 standard; Protein; 155 AA.  
 XX  
 AC AAM75712;  
 XX  
 DT 07-DEC-1998 (first entry)  
 XX  
 DE Fibroblast growth factor-2.  
 XX  
 KW Fibroblast growth factor-2; FGF-2; basic fibroblast growth factor;  
 KW bFGF; muten; protein engineering; heparin; thrombosis;  
 KW thrombocytopenia; ophthalmic disorder; human; therapy.  
 XX  
 OS Homo sapiens.  
 XX  
 PN  
 XX  
 FT Key Location/Qualifiers  
 FT Peptide 1..9  
 FT /label= sig\_peptide  
 FT Protein /note= "amino acid residues -9 to -1"  
 FT 10..155

FT /label= Mat protein  
 FT /note= "amino acid residues +1 to +145"  
 FT Misc-difference 95 /note= "Phe-95 is replaced by another amino acid  
 FT acid (Claim 3), preferably Ala, Phe, Ser,  
 FT Gly, Met, Leu or Tyr, especially Ala, Gly  
 FT or Ser"  
 FT Misc-difference 96 /note= "Glu-96 may be replaced by another amino  
 FT acid (Claim 7), preferably Ala, Gly or Ser"  
 FT Misc-difference 101 /note= "Asn-101 may be replaced by another amino  
 FT acid (Claim 2), preferably Ala, Phe, Ser,  
 FT Gly, Met, Leu or Tyr, especially Ala, Gly  
 FT or Ser"  
 FT Misc-difference 104 /note= "Asn-104 may be replaced by another amino  
 FT acid (Claim 1), preferably Ala, Phe, Ser,  
 FT Gly, Met, Leu or Tyr, especially Ala, Gly  
 FT or Ser"  
 XX WO9839436-A2.  
 XX 11-SEP-1998.  
 XX 03-MAR-1998; 98WO-JP00878.  
 XX 03-MAR-1997; 97US-0040785.  
 XX (EISA) EISAI CO LTD.  
 XX Kalyanaraman R, Kawai T, Zhu H;  
 XX MPI; 1998-495843/42.  
 XX N-PSDB; AAV47647.  
 DR Fibroblast growth factor mutein and DNA - having reduced receptor  
 PT binding and able to bind heparin, useful for treating and regulating  
 PT heparin-related disorders e.g. thrombosis  
 XX Disclosure: Page 53; 71pp; English.  
 XX This is the amino acid sequence of fibroblast growth factor-2  
 CC (FGF-2), or basic fibroblast growth factor (bFGF). Claimed DNA  
 CC molecules of the invention encode FGF mutein polypeptides (see  
 CC AA075711-20) that show reduced FGF receptor binding activity but  
 CC which retain the ability to bind heparin. For FGF-2, amino acid  
 CC residues 95, 101 or 104 are preferably replaced by other amino acid  
 CC residues, with an optional further replacement of the Glu-96  
 CC residue. The mutein may be further modified by replacement of the  
 CC Cys-78 and Cys-96 residues to reduce aggregation. The mutein  
 CC is obtained by site-specific or site-directed mutagenesis of FGF-2  
 CC DNA, incorporation of the mutated DNA into a vector and expression  
 CC in host cells. The FGF muteins are used to treat heparin-related  
 CC disorders, such as excessive bleeding induced by heparin,  
 CC ophthalmic disorders and heparin-associated thrombocytopenia and  
 CC thrombosis. They may also be used for drug design, especially  
 CC FGF-2 antagonists.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 100.0%; Score 826; DB 19; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Oy 121 TSWYVALKRTGYKLGSGKTPGOKAILFLPMASAKS 155  
 |||||||  
 Db 121 TSWYVALKRTGYKLGSGKTPGOKAILFLPMASAKS 155  
 RESULT 13  
 ID AAW71379 standard; Protein; 155 AA.  
 XX AAW71379;  
 AC AAW71379;  
 XX 04-DEC-1998 (first entry)  
 DT 18 kDa form of fibroblast growth factor-2 (FGF-2).  
 XX  
 DE Fibroblast growth factor-2; FGF-2; leaderless protein; inhibition;  
 XX export; angiogenesis; restenosis; treatment; tumour; inflammation;  
 KW cell proliferation; diabetes; retinopathy; infection;  
 KW polycystic kidney disease; atherosclerosis.  
 XX  
 XX Homo sapiens.  
 OS  
 XX WO9837880-A1.  
 XX 03-SEP-1998.  
 PD 25-FEB-1998; 98WO-US03689.  
 XX 26-FEB-1997; 97US-0807014.  
 XX (CIBL-) CIBLEX CORP.  
 XX Baird A, Florkiewicz RZ;  
 XX MPI; 1998-495377/42.  
 DR N-PSDB; AAV60340.  
 PT Inhibiting export of leaderless protein with agent that inhibits  
 PT binding to transporter protein - especially for treating  
 PT angiogenesis and restenosis by preventing export of fibroblast  
 PT growth factor, also methods for identifying leaderless proteins and  
 PT their transporters  
 XX  
 XX Claim 2; Pages 55-56; 116pp; English.  
 PS The present sequence represents 18 kDa form of fibroblast growth factor-2  
 XX (FGF-2), a leaderless protein. A leaderless protein refers to a protein  
 CC that is found in an extracellular environment, but lacks a canonical  
 CC leader sequence. The specification describes a method for inhibiting  
 CC export of a leaderless protein from a cell. The method comprises treating  
 CC the cell with an agent that inhibits binding between the leaderless  
 CC protein and a transport molecule. Treatment with the inhibiting agent  
 CC is specifically used to treat angiogenesis and restenosis, i.e. where  
 CC expression of FGF-2 is inhibited, and the agent is applied to endothelial  
 CC or smooth muscle cells. Other applications are treatment of tumours  
 CC (melanoma, teratocarcinoma, ovarian carcinoma, bladder cancer and  
 CC neuroblastoma), inflammation, cell proliferation, complications of  
 CC diabetes (e.g. retinopathy), viral, bacterial or fungal infections,  
 CC polycystic kidney disease and atherosclerosis.  
 XX  
 SQ Sequence 155 AA;  
 Query Match 100.0%; Score 826; DB 19; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 3.5e-80;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 14

AAW53023 standard; Protein; 155 AA.

AAW53023;

14-AUG-1998 (first entry)

Fibroblast growth factor protein 2.

FGF; cell growth, survival, differentiation; central nervous system; peripheral nervous tissue; treatment; diagnosis; cell culture.

Mammalian.

MO9808864-A1.

05-MAR-1998.

27-AUG-1997; 97WO-US15237.

30-AUG-1996; 96US-0705245.

(UYJO) UNIV JOHNS HOPKINS SCHOOL MEDICINE.

Nachans J, Smallwood PM;

WPI; 1998-179380/16.

New fibroblast growth factor homologous factors - useful for, e.g.

developing products for diagnosis and treatment of conditions

involving neuro-degenerative and neoplastic disorders

Disclosure; Page 51-52; 94pp; English.

Fibroblast growth factor (FGF) proteins (AAW53022-W53024 and

AAW53029-W53033) are members of the fibroblast growth factor family and

have homology to fibroblast growth factor homologous factor (FGF)

proteins. The FGF proteins (FGF 1-4) are involved in regulating the

growth, survival, and differentiation of cells in the central nervous

system, as well as cells in peripheral nervous tissues. The proteins can

therefore be used for treating and diagnosing conditions involving the

nervous system. FGFs can also be used in methods for maintaining the

cultured cells or tissues or to promote neuron growth in vitro.

Sequence 155 AA;

Query Match 100.0%; Score 826; DB 19; Length 155;

Best Local Similarity 100.0%; Pred. No. 3.5e-80;

Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

RESULT 15  
AAW9380  
ID AAW9380 standard; Protein; 155 AA.

AAW9380;  
21-MAY-1999 (first entry)

18 kD isoform of human fibroblast growth factor 2.

Human; fibroblast growth factor; translational start site; isoform;  
inhibition; nuclear localisation; nuclear trafficking component;  
proliferation; inflammation; tumour growth; angiogenesis.

Homo sapiens.

MO9903489-A2.

28-JAN-1999.

20-JUL-1998; 98WO-US14997.

21-JUL-1997; 97US-0897924.

(CIBL-) CIBLEX CORP.

Florkiewicz RZ;

WPI; 1999-131860/11.

N-PSDB; AAX25738.

Inhibiting nuclear localisation of proteins - used for controlling

cellular functions, e.g. undesired proliferation and inflammation,

particularly tumours, and treating viral infection

Disclosure; Page 42; 53pp; English.

This sequence represents the 18 kD isoform of the human fibroblast growth

factor 2 (FGF2). The invention relates to inhibiting nuclear localisation

of a nuclear protein in a cell, by administering an inhibitor of nuclear

trafficking components. Interrupting the interaction of trafficking

components and nuclear proteins may be used in a variety of applications,

including inhibiting nuclear localisation, modulating protein trafficking

of nuclear proteins such as FGF (in vitro or in vivo), identifying

CC further trafficking components, and treating a variety of conditions

CC of FGF2 are nuclear proteins whereas the 18 kD isoform is not but is

secreted. Inhibiting the nuclear transport of FGF-2 allows the control

of undesired proliferation and inflammation, particularly tumour growth.

Increasing export of FGF can promote angiogenesis. In addition, use of

CC inhibitors of nuclear localisation can limit or eradicate viral (e.g. HIV

or EBV) infections.

Sequence 155 AA;

Query Match 100.0%; Score 826; DB 20; Length 155;

Best Local Similarity 100.0%; Pred. No. 3.5e-80;

Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Search completed: December 16, 2002, 17:55:36  
Job time : 33 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:55:41 ; Search time 11.5 Seconds  
(without alignments)  
396.570 Million cell updates/sec

Title: 'US-09-886-856-8

Perfect score: 826

Sequence: 1 MAAGSTTLPALPEDGSGA.....GSKTGPQKALFLMSAKS 155

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:\*

- 1: /cgn2\_6/prodata/1/1aa/5A\_COMB.pep:\*
- 2: /cgn2\_6/prodata/1/1aa/5B\_COMB.pep:\*
- 3: /cgn2\_6/prodata/1/1aa/6A\_COMB.pep:\*
- 4: /cgn2\_6/prodata/1/1aa/6B\_COMB.pep:\*
- 5: /cgn2\_6/prodata/1/1aa/PCTUS\_COMB.pep:\*
- 6: /cgn2\_6/prodata/1/1aa/backfillseq.pep:\*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

#### SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	826	100.0	155	1	US-07-959-369-6
2	826	100.0	155	1	US-07-842-177A-1
3	826	100.0	155	1	US-08-439-725A-10
4	826	100.0	155	1	US-08-325-632-1
5	826	100.0	155	1	US-08-462-169B-10
6	826	100.0	155	2	US-08-667-471-10
7	826	100.0	155	2	US-08-438-439C-14
8	826	100.0	155	2	US-08-951-822-28
9	826	100.0	155	3	US-09-103-079-10
10	826	100.0	155	3	US-08-705-245-6
11	826	100.0	155	3	US-08-897-924A-25
12	826	100.0	155	3	US-08-718-904-11
13	826	100.0	155	3	US-09-023-082A-17
14	826	100.0	155	3	US-09-030-613-3
15	826	100.0	155	4	US-09-098-628-2
16	826	100.0	155	4	US-09-451-905-3
17	826	100.0	155	4	US-09-368-951-28
18	826	100.0	155	4	US-09-366-009-3
19	826	100.0	155	4	US-09-619-213B-99
20	826	100.0	155	5	PCT-US91-02186-2
21	826	100.0	158	6	5514566-8
22	826	100.0	158	2	US-08-599-895-3
23	826	100.0	158	3	US-09-211-290-3
24	826	100.0	158	3	US-09-332-676-3
25	826	100.0	158	4	US-09-220-077C-2
26	826	100.0	158	4	US-08-466-036A-3
27	826	100.0	210	1	US-08-464-590A-14

28	826	100.0	210	2	US-08-207-412B-9	Sequence 9, Appl1
29	826	100.0	210	3	US-09-093-585-14	Sequence 14, Appl1
30	826	100.0	432	1	US-07-959-369-8	Sequence 8, Appl1
31	826	100.0	432	2	US-08-836-854-20	Sequence 20, Appl1
32	826	100.0	432	4	US-09-366-009-4	Sequence 4, Appl1
33	823	99.6	155	1	US-07-959-369-7	Sequence 7, Appl1
34	823	99.6	432	1	US-07-959-369-9	Sequence 9, Appl1
35	821	99.4	154	2	US-08-438-439C-24	Sequence 24, Appl1
36	821	99.4	154	3	US-08-325-166-1	Sequence 1, Appl1
37	821	99.4	235	1	US-08-078-683A-39	Sequence 39, Appl1
38	820	99.3	457	4	US-09-366-009-5	Sequence 5, Appl1
39	817	98.9	153	3	US-08-325-186-2	Sequence 2, Appl1
40	817	98.9	154	5	PCT-US91-02186-6	Sequence 6, Appl1
41	817	98.9	155	1	US-08-023-757-2	Sequence 2, Appl1
42	817	98.9	155	1	US-08-177-507-2	Sequence 2, Appl1
43	817	98.9	155	4	US-09-240-952-4	Sequence 4, Appl1
44	817	98.9	155	5	PCT-US91-02186-4	Sequence 4, Appl1
45	817	98.9	155	6	5514566-6	Patent No. 5514566

#### ALIGNMENTS

RESULT 1  
US-07-959-369-6  
; Sequence 6, Application US/07959369  
; Patent No. 5302701  
; GENERAL INFORMATION:  
; APPLICANT: Hidetaka HASHI et al.  
; TITLE OF INVENTION: No. 5302701el Functional Polypeptide  
; NUMBER OF SEQUENCES: 23  
; CORRESPONDENCE ADDRESS:  
; ADDRESSEE: Wenderoth, Lind & Ponack  
; STREET: 805 Fifteenth Street, N.W., #700  
; CITY: Washington  
; STATE: D.C.  
; COUNTRY: U.S.A.  
; ZIP: 20005  
; COMPUTER READABLE FORM:  
; MEDIUM TYPE: Diskette, 5.25 inch, 500 kb  
; COMPUTER: IBM Compatible  
; OPERATING SYSTEM: MS-DOS  
; SOFTWARE: Wordperfect 5.1  
; CURRENT APPLICATION DATA:  
; APPLICATION NUMBER: US/07/959,369  
; FILING DATE: 19921013  
; CLASSIFICATION: 530  
; PRIOR APPLICATION DATA:  
; APPLICATION NUMBER:  
; FILING DATE:  
; ATTORNEY/AGENT INFORMATION:  
; NAME: Warren M. Cheek, Jr.  
; REGISTRATION NUMBER: 33,367  
; REFERENCE/DOCKET NUMBER:  
; TELECOMMUNICATION INFORMATION:  
; TELEPHONE: 202-371-8850  
; TELEFAX:  
; TELEX:  
; INFORMATION FOR SEQ ID NO: 6:  
; SEQUENCE CHARACTERISTICS:  
; LENGTH: 155 amino acids  
; TYPE: AMINO ACID  
; STRANDEDNESS: single  
; TOPOLOGY: linear  
; MOLECULE TYPE: polypeptide  
; HYPOTHEICAL:  
; ANTI-SENSE:  
; FRAGMENT TYPE:  
; ORIGINAL SOURCE:  
; ORGANISM:  
; STRAIN:  
; INDIVIDUAL ISOLATE:  
; DEVELOPMENTAL STAGE:

HAPLOTYPE:  
TISSUE TYPE:  
CELL TYPE:  
CELL LINE:  
ORGANELLE:  
IMMEDIATE SOURCE:  
LIBRARY:  
CLONE:  
POSITION IN GENOME:  
CHROMOSOME/SEGMENT:  
MAP POSITION:  
UNITS:  
FEATURE:  
NAME/KEY:  
LOCATION:  
IDENTIFICATION METHOD:  
OTHER INFORMATION:  
PUBLICATION INFORMATION:  
AUTHORS:  
TITLE:  
JOURNAL:  
VOLUME:  
ISSUE:  
PAGES:  
DATE:  
DOCUMENT NUMBER:  
FILING DATE:  
PUBLICATION DATE:  
RELEVANT RESIDUES IN SEQ ID NO:  
US-07-959-369-6

Query Match 100.0%; Score 826; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 66-89; Indels 0; Gaps 0;  
Matches 155; Conservative 0; Mismatches 0;

QY 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KIQLOAEERGVSIGKVCANRYLAMKEDGRLASCVTDECFPERLESNNNTYRSRKY 120  
DB 61 KIQLOAEERGVSIGKVCANRYLAMKEDGRLASCVTDECFPERLESNNNTYRSRKY 120  
QY 121 TSWYVALKRTGQYKLGSKTGPQKALFLPMSAKS 155  
DB 121 TSWYVALKRTGQYKLGSKTGPQKALFLPMSAKS 155

RESULT 2  
US-07-842-177A-1  
Sequence 1, Application US/07842177A  
Patent No. 5348863  
GENERAL INFORMATION:  
APPLICANT: MONSIEUR PIERRE  
APPLICANT: PAUL, FRANCOIS  
APPLICANT: BETBEDER, DIDIER  
APPLICANT: SARMIENOS, PAOLO  
TITLE OF INVENTION: PROCESS FOR THE ENZYMAIC PREPARATION OF  
TITLE OF INVENTION: BASIC FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 6  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,  
STREET: 1755 Jefferson Davis Highway, Suite 400  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.25

CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/07/842,177A  
FILING DATE: 19920402  
CLASSIFICATION: 435  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: GB 9017008.5  
FILING DATE: 02-AUG-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: OBLON, NO. 5348863man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-263-0 PCT  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703) 521-4500  
TELEFAX: (703) 486-2347  
TELEX: 248855 OPAT UR  
INFORMATION FOR SEQ ID NO: 1:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: AMINO ACID  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-07-842-177A-1

Query Match 100.0%; Score 826; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 66-89; Indels 0; Gaps 0;  
Matches 155; Conservative 0; Mismatches 0;

QY 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAPPGHFKDPKRLCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KIQLOAEERGVSIGKVCANRYLAMKEDGRLASCVTDECFPERLESNNNTYRSRKY 120  
DB 61 KIQLOAEERGVSIGKVCANRYLAMKEDGRLASCVTDECFPERLESNNNTYRSRKY 120  
QY 121 TSWYVALKRTGQYKLGSKTGPQKALFLPMSAKS 155  
DB 121 TSWYVALKRTGQYKLGSKTGPQKALFLPMSAKS 155

RESULT 3  
US-08-439-725A-10  
Sequence 10, Application US/08439725A  
Patent No. 5693775  
GENERAL INFORMATION:  
APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: Macke, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/439,725A  
FILING DATE: 12-MAY-1995  
CLASSIFICATION: 424  
ATTORNEY/AGENT INFORMATION:  
NAME: Haile, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/047001  
TELECOMMUNICATION INFORMATION:

TELEPHONE: 619/678-5070  
TELEFAX: 617/678-5099  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-439-725A-10

Query Match 100.0%; Score 826; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 66-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITLTPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRIHDPGRVDGVREKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRIHDPGRVDGVREKSDPHI 60  
QY 61 KLOLQAEERGVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOLQAEERGVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 4

US-08-325-632-1  
Sequence 1, Application US/08325632  
Patent No. 571438  
GENERAL INFORMATION:  
APPLICANT: ADAMI, MARCO  
APPLICANT: DALLA CASA, ROSANNA  
APPLICANT: GAMBINI, LUCIANO  
APPLICANT: MAGRINI, ROBERTO  
APPLICANT: MARIANI, GIOVANNI  
APPLICANT: PERRONE, GIOVANNI  
TITLE OF INVENTION: STABLE PHARMACEUTICAL COMPOSITIONS  
TITLE OF INVENTION: CONTAINING A FIBROBLAST GROWTH FACTOR  
NUMBER OF SEQUENCES: 1  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,  
ADDRESS: P.C.  
STREET: 1755 Jefferson Davis Highway, Fourth Floor  
CITY: Arlington  
STATE: Virginia  
COUNTRY: U.S.A.  
ZIP: 22202  
COMPUTER READABLE FORM:  
MEDIUM TYPE: floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.25  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/325,632  
FILING DATE:  
CLASSIFICATION: 514  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/07/966,077  
FILING DATE:  
APPLICATION NUMBER: GB 9015824.7  
FILING DATE: 18-JUL-1990  
ATTORNEY/AGENT INFORMATION:  
NAME: OBLON, NO. 571445man F.  
REGISTRATION NUMBER: 24,618  
REFERENCE/DOCKET NUMBER: 769-288-0 PCT  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (703)412-3000  
TELEFAX: (703)412-3000  
TELEX: 248855 OPAT UR  
INFORMATION FOR SEQ ID NO: 1:

SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-325-632-1

Query Match 100.0%; Score 826; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 66-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITLTPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRIHDPGRVDGVREKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRIHDPGRVDGVREKSDPHI 60  
QY 61 KLOLQAEERGVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOLQAEERGVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 5

US-08-462-169B-10  
Sequence 10, Application US/08462169B  
Patent No. 5773252  
GENERAL INFORMATION:  
APPLICANT: John Greene and Craig A. Rosen  
TITLE OF INVENTION: Fibroblast Growth Factor-15  
NUMBER OF SEQUENCES: 32  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN,  
ADDRESS: CECCHI, STEWART & OLSTEIN  
STREET: 6 BECKER FARM ROAD  
CITY: ROSELAND  
STATE: NEW JERSEY  
COUNTRY: USA  
ZIP: 07068  
COMPUTER READABLE FORM:  
MEDIUM TYPE: 3.5 INCH DISKETTE  
COMPUTER: IBM PS/2  
OPERATING SYSTEM: MS-DOS  
SOFTWARE: WORD PERFECT 5.1  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/462,169B  
FILING DATE: 05 JUN 95  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: MULLINS, J.G.  
REGISTRATION NUMBER: 33,073  
REFERENCE/DOCKET NUMBER: 325800-441 (PF203)  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 201-994-1700  
TELEFAX: 201-994-1744  
INFORMATION FOR SEQ ID NO: 10:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 AMINO ACIDS  
TYPE: AMINO ACID  
STRANDEDNESS:  
TOPOLOGY: LINEAR  
MOLECULE TYPE: PROTEIN  
US-08-462-169B-10

Query Match 100.0%; Score 826; DB 1; Length 155;  
Best Local Similarity 100.0%; Pred. No. 66-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITLTPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRIHDPGRVDGVREKSDPHI 60  
DB 1 MAAGSITLTPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRIHDPGRVDGVREKSDPHI 60



QY 61 KLQLOAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120  
DB 61 KLQLOAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120

QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 6  
US-08-867-471-10  
Sequence 10, Application US/08867471  
Patent No. 5872226

## GENERAL INFORMATION:

APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: MacKe, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE  
NUMBER OF SEQUENCES: 15  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/867,471  
FILING DATE: 02-JUN-1997  
CLASSIFICATION: 536  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: 08/439,725  
FILING DATE: 12-MAY-1995  
ATTORNEY/AGENT INFORMATION:  
NAME: Haile, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/047001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-5099

## INFORMATION FOR SEQ ID NO: 10:

SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-867-471-10

Query Match 100.0%; Score 826; DB 2; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPPGHFKDPRKLYCKNGGFLLRIHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAPPPGHFKDPRKLYCKNGGFLLRIHPDGRVDGVREKSDPHI 60  
QY 61 KLQLOAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120  
DB 61 KLQLOAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120  
QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 7  
US-08-438-439C-14  
Sequence 14, Application US/08438439C  
Patent No. 5876967

## GENERAL INFORMATION:

APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M.  
APPLICANT: MacKe, Jennifer P.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-2 AND METHODS OF USE  
NUMBER OF SEQUENCES: 25  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 4225 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037

## COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patentin Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/438,439C  
FILING DATE: May 12, 1995  
CLASSIFICATION: 435  
ATTORNEY/AGENT INFORMATION:  
NAME: Haile, Lisa A.  
REGISTRATION NUMBER: 38,347  
REFERENCE/DOCKET NUMBER: 07265/046001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-5099

## INFORMATION FOR SEQ ID NO: 14:

SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-438-439C-14

Query Match 100.0%; Score 826; DB 2; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPPGHFKDPRKLYCKNGGFLLRIHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAPPPGHFKDPRKLYCKNGGFLLRIHPDGRVDGVREKSDPHI 60  
QY 61 KLQLOAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120  
DB 61 KLQLOAERGVVISIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120  
QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 8  
US-08-951-822-28  
Sequence 28, Application US/08951822A  
Patent No. 5989866

## GENERAL INFORMATION:

APPLICANT: Delisher, Theresa A.  
APPLICANT: Conklin, Darrell C.  
APPLICANT: Raymond, Penella  
APPLICANT: Bukowski, Thomas R.  
APPLICANT: Holderman, Susan D.  
APPLICANT: Hansen, Birgit  
APPLICANT: Sheppard, Paul O.  
TITLE OF INVENTION: NOVEL FGF HOMOLOGS

FILE REFERENCE: 96-20  
CURRENT APPLICATION NUMBER: US/08/951,822A  
CURRENT FILING DATE: 1997-10-16  
NUMBER OF SEQ ID NOS: 36  
SOFTWARE: FastSeq for Windows Version 3.0  
SEQ ID NO: 28  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-08-951-822-28

Query Match 100.0%; Score 826; DB 2; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120  
DB 61 KLOQAEERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120  
QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 9  
US-09-103-079-10  
Sequence 10, Application US/09103079A  
Patent No. 6013477  
GENERAL INFORMATION:  
APPLICANT: Greene, John M.  
APPLICANT: Rosen, Craig A.  
TITLE OF INVENTION: Fibroblast Growth Factor 15  
FILE REFERENCE: PF203D1  
CURRENT APPLICATION NUMBER: US/09/103,079A  
CURRENT FILING DATE: 1998-06-23  
EARLIER APPLICATION NUMBER: 08/462,169  
EARLIER FILING DATE: 1995-06-05  
NUMBER OF SEQ ID NOS: 32  
SOFTWARE: Patent Ver. 2.0  
SEQ ID NO 10  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-103-079-10

Query Match 100.0%; Score 826; DB 3; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120  
DB 61 KLOQAEERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120  
QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 10  
US-08-705-245-6  
Sequence 6, Application US/08705245  
Patent No. 6020189  
GENERAL INFORMATION:  
APPLICANT: Nathans et al., Jeremy  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS

TITLE OF INVENTION: FACTORS (FHPs) AND METHODS OF USE  
NUMBER OF SEQUENCES: 37  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: Fish & Richardson P.C.  
STREET: 425 Executive Square, Suite 1400  
CITY: La Jolla  
STATE: CA  
COUNTRY: USA  
ZIP: 92037  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/08/705,245  
FILING DATE: 30-AUG-1996  
CLASSIFICATION: 530  
ATTORNEY/AGENT INFORMATION:  
NAME: Metherell, Jr., John R.  
REGISTRATION NUMBER: 31,678  
REFERENCE/DOCKET NUMBER: 07265/094001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 619/678-5070  
TELEFAX: 619/678-50999  
INFORMATION FOR SEQ ID NO: 6:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-705-245-6

Query Match 100.0%; Score 826; DB 3; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVGVREKSDPHI 60  
QY 61 KLOQAEERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120  
DB 61 KLOQAEERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120  
QY 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMVVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 11  
US-08-897-924A-25  
Sequence 25, Application US/08897924A  
Patent No. 6028058  
GENERAL INFORMATION:  
APPLICANT: Florjanczyk, Robert Z.  
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR REGULATING  
NUMBER OF SEQUENCES: 28  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: SEED AND BERRY LLP  
STREET: 6300 Columbia Center, 701 Fifth Avenue  
CITY: Seattle  
STATE: Washington  
COUNTRY: USA  
ZIP: 98104  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/897,924A  
FILING DATE: 21-JUL-1997  
CLASSIFICATION: 514  
ATTORNEY/AGENT INFORMATION:  
NAME: Maki, David J.  
REGISTRATION NUMBER: 31,392  
REFERENCE/DOCKET NUMBER: 200124,403  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (206) 622-4900  
TELEFAX: (206) 682-6031  
INFORMATION FOR SEQ ID NO: 25:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-08-897-924A-25

Query Match 100.0%; Score 826; DB 3; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLQLQAEERGVSISIKVCANRYLAMKEDGRLIASKCVTDECFEERLESNNNTYRSRKY 120  
DB 61 KLQLQAEERGVSISIKVCANRYLAMKEDGRLIASKCVTDECFEERLESNNNTYRSRKY 120  
QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 12

US-08-718-904-11  
Sequence 11, Application US/08718904

Patent No. 6037329  
GENERAL INFORMATION:

APPLICANT: Baird, J. Andrew

APPLICANT: Chandler, Lois Ann

APPLICANT: Sosnowski, Barbara A.

TITLE OF INVENTION: COMPOSITIONS CONTAINING NUCLEIC ACIDS AND LIGANDS FOR THERAPE

NUMBER OF SEQUENCES: 128

CORRESPONDENCE ADDRESS:

ADDRESSEE: SEED and BERRY LLP

STREET: 6300 Columbia Center, 701 Fifth Avenue

CITY: Seattle

STATE: Washington

COUNTRY: USA

ZIP: 98104-7092

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/718,904

FILING DATE: 24-SEP-1996

CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: No. 6037329, enburg Ph.D., Carol

REGISTRATION NUMBER: 39,317

REFERENCE/DOCKET NUMBER: 760100,41501

TELECOMMUNICATION INFORMATION:

TELEPHONE: (206) 622-4900

TELEFAX: (206) 682-6031

INFORMATION FOR SEQ ID NO: 11:

SEQUENCE CHARACTERISTICS:

LENGTH: 155 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: unknown  
MOLECULE TYPE: peptide  
FEATURE:  
OTHER INFORMATION: /note="FGF-2"  
US-08-718-904-11

Query Match 100.0%; Score 826; DB 3; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLQLQAEERGVSISIKVCANRYLAMKEDGRLIASKCVTDECFEERLESNNNTYRSRKY 120  
DB 61 KLQLQAEERGVSISIKVCANRYLAMKEDGRLIASKCVTDECFEERLESNNNTYRSRKY 120  
QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 13

US-09-023-082A-17  
Sequence 17, Application US/09023082A

Patent No. 6077692  
GENERAL INFORMATION:

APPLICANT: RUBEN, STEVEN M.

APPLICANT: JIMENEZ, PABLO

APPLICANT: DUAN, D. ROXANNE

APPLICANT: RAMPY, MARK A.

APPLICANT: MENDRICK, DONNA

APPLICANT: ZHANG, JUN

APPLICANT: NI, JIAN

APPLICANT: MOORE, PAUL A.

APPLICANT: COLEMAN, TIMOTHY A.

APPLICANT: GRUBER, JOACHIM R.

APPLICANT: DILLON, PATRICK J.

APPLICANT: GENTZ, REINER L.

TITLE OF INVENTION: KERATINOCYTE GROWTH FACTOR-2

NUMBER OF SEQUENCES: 148

CORRESPONDENCE ADDRESS:

ADDRESSEE: STERN, KESSLER, GOLDSTEIN & FOX, P.L.L.C.

STREET: 1100 NEW YORK AVE, NW, SUITE 600

CITY: WASHINGTON

STATE: DC

COUNTRY: USA

ZIP: 20005-3934

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/023,082A

FILING DATE: 13-FEB-1998

CLASSIFICATION: 435

APPLICATION NUMBER: PCT/US95/01790

FILING DATE: 14-FEB-1995

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/461,195

FILING DATE: 05-JUN-1995

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/023,852

FILING DATE: 13-AUG-1996

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 60/039,045

FILING DATE: 28-FEB-1997

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/862,432

FILING DATE: 23-MAY-1997

PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US 08/910,875  
FILING DATE: 13-AUG-1997  
PRIOR APPLICATION DATA: US 60/055,561  
APPLICATION NUMBER: US 60/055,561  
FILING DATE: 13-AUG-1997  
ATTORNEY/AGENT INFORMATION:  
NAME: STEFFE, ERIC K.  
REGISTRATION NUMBER: 36,688  
REFERENCE/DOCKET NUMBER: 1488.0360008/EKS  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 202-371-2600  
TELEFAX: 202-371-2540  
INFORMATION FOR SEQ ID NO: 17:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: not relevant  
TOPOLOGY: not relevant  
MOLECULE TYPE: protein  
US-09-023-082A-17

Query Match 100.0%; Score 826; DB 3; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPLPDDGGGAFPPGHFKDPKRLCYKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPLPDDGGGAFPPGHFKDPKRLCYKNGGFFLRHPDGRVGVREKSDPHI 60

QY 61 KLOLAERGVVSTKGVCAVRYLAKMEDGRLASCVTDECFEERLESNNYNTYRSRY 120  
DB 61 KLOLAERGVVSTKGVCAVRYLAKMEDGRLASCVTDECFEERLESNNYNTYRSRY 120

QY 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 14  
US-09-030-613-3  
Sequence 3, Application US/09030613  
Patent No. 6083706  
GENERAL INFORMATION:  
APPLICANT: Floorkiewicz, Robert Z.  
APPLICANT: Baid, J. Andrew  
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT  
NUMBER OF SEQUENCES: 36  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: SEED AND BERRY LLP  
STREET: 6300 Columbia Center, 701 Fifth Avenue  
CITY: Seattle  
STATE: Washington  
COUNTRY: USA  
ZIP: 98104  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: Patent Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/030,613  
FILING DATE: 25-FEB-1998  
CLASSIFICATION:  
ATTORNEY/AGENT INFORMATION:  
NAME: No. 6083706tenburg Ph.D., Carol  
REGISTRATION NUMBER: 39,317  
REFERENCE/DOCKET NUMBER: 760100.418C1  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (206) 622-4900  
TELEFAX: (206) 682-6031  
INFORMATION FOR SEQ ID NO: 3:  
SEQUENCE CHARACTERISTICS:

LENGTH: 155 amino acids  
TYPE: amino acid  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
US-09-030-613-3

Query Match 100.0%; Score 826; DB 3; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPLPDDGGGAFPPGHFKDPKRLCYKNGGFFLRHPDGRVGVREKSDPHI 60  
DB 1 MAAGSITTLPLPDDGGGAFPPGHFKDPKRLCYKNGGFFLRHPDGRVGVREKSDPHI 60

QY 61 KLOLAERGVVSTKGVCAVRYLAKMEDGRLASCVTDECFEERLESNNYNTYRSRY 120  
DB 61 KLOLAERGVVSTKGVCAVRYLAKMEDGRLASCVTDECFEERLESNNYNTYRSRY 120

QY 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 15  
US-09-098-628-2  
Sequence 2, Application US/09098628  
Patent No. 6294359  
GENERAL INFORMATION:  
APPLICANT: FIDES, J.C.  
APPLICANT: ABRAHAM, J.D.  
TITLE OF INVENTION: HUMAN BASIC FIBROBLAST GROWTH  
TITLE OF INVENTION: FACTOR ANALOG  
NUMBER OF SEQUENCES: 69  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: MORRISON & FOERSTER  
STREET: 755 PAGE MILL ROAD  
CITY: Palo Alto  
STATE: CA  
COUNTRY: USA  
ZIP: 94304-1018  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Diskette  
COMPUTER: IBM compatible  
OPERATING SYSTEM: Windows  
SOFTWARE: FastSeq for Windows Version 2.0b  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/098,628  
FILING DATE:  
CLASSIFICATION:  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER:  
FILING DATE:  
ATTORNEY/AGENT INFORMATION:  
NAME: Lehnhardt, Susan K  
REGISTRATION NUMBER: 33,943  
REFERENCE/DOCKET NUMBER: 21900-20089.10  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: 650-813-5600  
TELEFAX: 650-494-0792  
INFORMATION FOR SEQ ID NO: 2:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 155 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: protein  
FRAGMENT TYPE: internal  
US-09-098-628-2

Query Match 100.0%; Score 826; DB 4; Length 155;  
Best Local Similarity 100.0%; Pred. No. 6e-89;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

QY 1 MAAGSITTLPALPEDGGSGAPPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVREKSDPHI 60
    |||||
Db 1 MAAGSITTLPALPEDGGSGAPPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVREKSDPHI 60
    |||||
QY 61 KLOLOAERGVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKY 120
    |||||
Db 61 KLOLOAERGVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKY 120
    |||||
QY 121 TSWVVALKRTGQYKLGSKTGPQKAILFLPMGAKS 155
    |||||
Db 121 TSWVVALKRTGQYKLGSKTGPQKAILFLPMGAKS 155
    |||||

```

Search completed: December 16, 2002, 17:58:24  
 Job time : 11.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:53:40 ; Search time 7.5 Seconds

(without alignments)  
344.355 Million cell updates/sec

Title: US-09-886-856-8

Sequence: 1 MAAGSITTLPALPEDGSGA.....GSKTGPQKAILFLPMSAKS 155

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 105981 seqs, 1662342 residues

Total number of hits satisfying chosen parameters: 105981

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA:\*

- 1: /cgn2\_6/ptodata/1/pubppa/US08\_NEW\_PUB pep:\*
- 2: /cgn2\_6/ptodata/1/pubppa/PCT\_NEW\_PUB pep:\*
- 3: /cgn2\_6/ptodata/1/pubppa/US06\_NEW\_PUB pep:\*
- 4: /cgn2\_6/ptodata/1/pubppa/US07\_PUBCOMB pep:\*
- 5: /cgn2\_6/ptodata/1/pubppa/US07\_NEW\_PUB pep:\*
- 6: /cgn2\_6/ptodata/1/pubppa/US07\_PUBCOMB pep:\*
- 7: /cgn2\_6/ptodata/1/pubppa/PCTUS\_PUBCOMB pep:\*
- 8: /cgn2\_6/ptodata/1/pubppa/US08\_PUBCOMB pep:\*
- 9: /cgn2\_6/ptodata/1/pubppa/US09\_NEW\_PUB pep:\*
- 10: /cgn2\_6/ptodata/1/pubppa/US09\_PUBCOMB pep:\*
- 11: /cgn2\_6/ptodata/1/pubppa/US10\_NEW\_PUB pep:\*
- 12: /cgn2\_6/ptodata/1/pubppa/US10\_PUBCOMB pep:\*
- 13: /cgn2\_6/ptodata/1/pubppa/US60\_NEW\_PUB pep:\*
- 14: /cgn2\_6/ptodata/1/pubppa/US60\_PUBCOMB pep:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	826	100.0	155	10	US-09-822-485-5
2	826	100.0	155	10	US-09-802-365-8
3	826	100.0	155	10	US-09-251-263-10
4	826	100.0	155	10	US-09-425-021-10
5	826	100.0	155	10	US-09-886-856-8
6	826	100.0	155	10	US-09-749-1288-7
7	826	100.0	155	10	US-09-826-210-2
8	826	100.0	210	10	US-09-902-773A-4
9	821	99.4	159	10	US-09-934-706-4
10	821	98.9	501	10	US-09-802-365-6
11	817	98.9	155	10	US-09-886-856-6
12	817	98.9	155	10	US-09-886-856-6
13	804	97.3	150	12	US-10-016-447-8
14	785	95.0	146	9	US-10-131-965-3
15	785	95.0	146	10	US-09-802-365-4
16	785	95.0	146	10	US-09-886-856-4
17	776	93.9	146	9	US-10-131-965-5
18	776	93.9	146	10	US-09-802-365-2
19	776	93.9	146	10	US-09-771-302-2

20	776	93.9	146	10	US-09-886-856-2	Sequence 2, Appli
21	720	87.2	134	9	US-09-901-938-24	Sequence 24, Appli
22	409.5	49.6	155	9	US-09-929-945-2	Sequence 2, Appli
23	409.5	49.6	155	10	US-09-284-663A-9	Sequence 9, Appli
24	409.5	49.6	155	10	US-09-902-773A-3	Sequence 3, Appli
25	409.5	49.6	155	10	US-09-251-263-9	Sequence 9, Appli
26	409.5	49.6	155	10	US-09-425-021-9	Sequence 9, Appli
27	409.5	49.6	155	10	US-09-929-918-2	Sequence 2, Appli
28	409.5	49.6	155	10	US-09-929-918-11	Sequence 11, Appli
29	404.5	49.0	154	9	US-09-929-945-8	Sequence 8, Appli
30	400.5	48.5	153	10	US-09-822-485-4	Sequence 4, Appli
31	388.5	47.0	149	12	US-10-016-447-9	Sequence 9, Appli
32	386	46.7	141	9	US-09-929-945-7	Sequence 7, Appli
33	386	46.7	141	9	US-09-929-918-7	Sequence 7, Appli
34	379	45.9	137	9	US-09-901-938-23	Sequence 23, Appli
35	370	44.8	140	9	US-10-131-965-1	Sequence 1, Appli
36	366	44.3	135	9	US-09-929-945-5	Sequence 5, Appli
37	366	44.3	135	10	US-09-929-918-5	Sequence 5, Appli
38	361	43.7	158	12	US-10-016-447-18	Sequence 18, Appli
39	357	43.2	140	9	US-10-131-965-2	Sequence 2, Appli
40	321	38.9	155	10	US-09-425-021-24	Sequence 24, Appli
41	257.5	31.2	206	10	US-09-251-263-13	Sequence 13, Appli
42	255.5	30.9	205	9	US-10-131-965-8	Sequence 8, Appli
43	255.5	30.9	206	10	US-09-822-485-7	Sequence 7, Appli
44	255.5	30.9	206	10	US-09-750-963-9	Sequence 9, Appli
45	255.5	30.9	206	10	US-09-902-773A-5	Sequence 5, Appli

## ALIGNMENTS

RESULT 1  
US-09-822-485-5  
; Sequence 5, Application US/09822485  
; Patent No. US20020001825A1  
; GENERAL INFORMATION:  
APPLICANT: Itoh, No. US0020001825A1uyuk1  
TITLE OF INVENTION: No. US20020001825A1el Fibroblast Growth Factor-Like Polypeptides  
; FILE REFERENCE: 08035.0001-01000  
; CURRENT APPLICATION NUMBER: US/09/822,485  
; CURRENT FILING DATE: 2001-04-02  
; NUMBER OF SEQ ID NOS: 35  
; SOFTWARE: PatentIn Ver. 2.0  
; SEQ ID NO 5  
; LENGTH: 155  
; TYPE: PRT  
; ORGANISM: Homo sapiens  
; PUBLICATION INFORMATION:  
JOURNAL: EMBO J.  
; VOLUME: 5  
; PAGES: 2523-2528  
; DATE: 1986  
US-09-822-485-5

Query Match 100.0%; Score 826; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 3, 1e-78;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGFKPKRLCYKNAGFFLRHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGFKPKRLCYKNAGFFLRHPDGRVDGVRKSDPHI 60  
QY 61 KLTQAEERGVVSIKGYCANRYLWAKEDGRLASKCVTDCEFFERLESNNYTRSKY 120  
DB 61 KLTQAEERGVVSIKGYCANRYLWAKEDGRLASKCVTDCEFFERLESNNYTRSKY 120  
QY 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
RESULT 2  
US-09-802-365-8

```

Sequence 8 Application US/09802365 .
Patent No. US20020032153A1
GENERAL INFORMATION:
APPLICANT: Whitehouse, Martha Jo
TITLE OF INVENTION: Methods and Compositions for the
TITLE OF INVENTION: Treatment and Prevention of Erectile Dysfunction
FILE REFERENCE: 1671.003
CURRENT APPLICATION NUMBER: US/09/802,365
CURRENT FILING DATE: 2001-03-09
PRIOR APPLICATION NUMBER: 60/188,480
PRIOR FILING DATE: 2000-03-10
PRIOR APPLICATION NUMBER: 60/203,415.
PRIOR FILING DATE: 2000-05-11
NUMBER OF SEQ ID NOS: 9
SOFTWARE: FastSeq for Windows Version 4.0
SEQ ID NO 8
LENGTH: 155
TYPE: PR1
ORGANISM: Homo sapiens
US-09-802-365-8

```

Query Match	100.0%;	Score 826;	DB 10;	Length 155;
Best Local Similarity	100.0%;	Pred. No. 3.1e-78;		
Matches 155;	Conservative 0;	Mismatches 0;	Indels 0;	Gaps 0

Oy 1 MAAGSITTLPALPEDGGSGAFPFGHFKPKPKRLYCKNGGFLRIHPDGRVDGVREKSDPHI 60  
| | | | | | | | | | | | | | | | | | | | | |  
Db 1 MAASITTLPALPEDGGSGAFPFGHFKPKPKRLYCKNGGFLRIHPDGRVDGVREKSDPHI 60

[illegible]

```
QY      121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155
      |||||
      121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155
Db      121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155
```

RESULT 3  
US-09-251-263-10

Sequence 10, Application US/09251263  
Patent No. US20020052477A1  
GENERAL INFORMATION:

APPLICANT: Nathans, Jeremy  
APPLICANT: Smallwood, Philip M  
APPLICANT: Macke, Jennifer P.

TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS  
TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE  
FILE REFERENCE: 07265/047003

CURRENT APPLICATION NUMBER: US/09/251,263  
CURRENT FILING DATE: 1999-02-16  
EARLIER APPLICATION NUMBER: 08/867,471

EARLIER FILING DATE: 1997-06-02  
EARLIER APPLICATION NUMBER: 08/439,725  
EARLIER FILING DATE: 1995-05-12

NUMBER OF SEQ ID NOS: 15  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 10

LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens

Query Match	Score	DB	Length
100.0%	826	10	155
100.0%	3	10-78	

1 MAAAGCTGTTT PAT ATGCGGCGAATPBCGACFKKDKKRIYCKNCGEETRTIHDPGCGVNDGVRKSNPHT 60  
 Best Local Simultaneously 100.0%; Evalue: 10.0; S.1e-18;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

1 MAAGSITTLPALPEDGSSGAFPPGHTKDPKRLYCKNGGFLRIHDDGRVDGVREKSDPHI 60

61 KLOLAERGVSISKVCANRYLANKEDGRLLASKCVTDECFPERLESNNNTYRSRY 12

Db 61 KLQQAERGRGVVSTKGVCAIRYLAKMEDGDLASKCTTDECCFFERLESNNVNTYSRKY 120

QY 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

Db 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 4  
US-09-425-021-10  
Sequence 10, Application US/09425021

; Patent NO. US2002007648A1  
 ;  
 ; GENERAL INFORMATION:  
 ;  
 ; APPLICANT: Greene, John M.  
 ;  
 ; APPLICANT: Rosen, Craig A.

```

1  TITLE OF INVENTION: Fibroblast Growth Factor 15
2
3  FILE REFERENCE: PF203D1
4
5  CURRENT APPLICATION NUMBER: US/09/425,021
6
7  CURRENT FILING DATE: 1999-10-25

```

```

; EARLIER APPLICATION NUMBER: 09/103,074
;
; EARLIER FILING DATE: 1998-06-23
;
; NUMBER OF SEQ ID NOS: 32
;
SOFTWARE: PatentIn Ver 2.0

```

```

; SEQ ID NO 10
; LENGTH: 155
; TYPE: PRT
OCCASION HOME OCCASION

```

US-09-425-021-10	
Query Match	100.0%;
Best Match	Score 826; DB 10;
Best Match	Length 155;

Matches	155, Conservative	0, Mismatches	0, Indels	0, Gaps		
1	MAAGSITTTT	PALP	EDDGGSCA	FPFGHFKDPKRL	LYKNGGFFLRHDPDGVDTREKSDPHI	60

Db 1 MAAGSITTLPALPEDGGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHI 60

Qy 61 KTLQLAERGVVSIKGYCANRYLAMEDGRLLASKVTDECFPEERLESNNYNTYRSRY 120

Db 61 KLQQAERGVS IKGVCANRYLAMKEGRL LASKCVITDECFEERLESNNYNTYRSRY 120

QY 121 TSWYVALKRTGYKLGSKTGPGQKALFLPMSAKS 155

Db 121 TSWYVALKRTGQYKLGSKRTPGQKALFLPMSAKS 155

RESULTS  
US-09-886-856-8  
; Sequence 8, Application US/09886856  
; Patent No. US20020115603A1

```

; GENERAL INFORMATION:
; APPLICANT: Whitehouse, Martha Jo
; TITLE OF INVENTION: Methods and Compositions for the
; TITLE OF INVENTION: Treatment of Peripheral Artery Disease

```

FILE REFERENCE: P16090.004  
CURRENT APPLICATION NUMBER: US/09/886,856  
CURRENT FILING DATE: 2001-06-21  
PRIOR APPLICATION NUMBER: 60/213,504

; PRIOR FILING DATE: 2000-06-22  
 ; PRIOR APPLICATION NUMBER: 60/264,572  
 ; PRIOR FILING DATE: 2000-01-26  
 ; PRIOR APPLICATION NUMBER: 60/276,549

```

; PRIOR FILING DATE: 2001-03-16
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO. 8

```

```

; LENGTH: 155
; TYPE: PRT
; ORGANISM: Homo sapiens
; NC-09-886-856-8

```

US-09-886-856-8	
Query Match	100.0%
Best Local Similarity	Score 826; DB 10;
Best Local Similarity	Pred No. 3 le-78;
	Length 155

Best Local Similarity	100.0%	Pred. NO. 3.1e-78;	
Matches	155;	Conservative	0;
		Mismatches	0;
		Indels	0;
		Gaps	0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOLQAEERGVSVISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOLQAEERGVSVISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 6

US-09-749-728B-7  
Sequence 7, Application US/09749728B  
Patent No. US20020142457A1  
GENERAL INFORMATION:  
APPLICANT: Umezawa, Akihito  
APPLICANT: Hata, Jun-ichi  
APPLICANT: Fukuda, Keiichi  
APPLICANT: Ogawa, Satoshi  
APPLICANT: Sakurada, Kazuhiro  
APPLICANT: Gojo, Satoshi  
APPLICANT: Yamada, Yoji  
TITLE OF INVENTION: THE CELL HAVING THE POTENTIALITY OF DIFFERENTIATION INTO CARDIOMY  
FILE REFERENCE: 00766.000043  
CURRENT APPLICATION NUMBER: US/09/749, 728B  
CURRENT FILING DATE: 2001-09-17  
PRIOR APPLICATION NUMBER: H11-372826  
PRIOR FILING DATE: 1999-12-28  
PRIOR APPLICATION NUMBER: PCT-JP00-01148  
PRIOR FILING DATE: 2000-02-28  
PRIOR APPLICATION NUMBER: PCT-JP00-07741  
PRIOR FILING DATE: 2000-11-02  
NUMBER OF SEQ ID NOS: 80  
SOFTWARE: PatentIn Ver.2.0  
SEQ ID NO 7  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-749-728B-7

Query Match 100.0%; Score 826; DB 10; Length 155;  
Best Local Similarity 100.0%; Pred. No. 3,1e-78;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
QY 61 KLOLQAEERGVSVISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 61 KLOLQAEERGVSVISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

## RESULT 7

US-09-826-210-2  
Sequence 2, Application US/09826210  
Patent No. US2001020004A1  
GENERAL INFORMATION:  
APPLICANT: Springer, Barry A.  
APPLICANT: Pantoliano, Michael W.  
APPLICANT: Sharp, Celia M.  
TITLE OF INVENTION: Analogs of Human basic Fibroblast Growth Factor  
FILE REFERENCE: 1503.022003  
CURRENT APPLICATION NUMBER: US/09/826, 210  
CURRENT FILING DATE: 2001-04-05

PRIOR APPLICATION NUMBER: US 09/220, 077  
PRIOR FILING DATE: 1998-12-23  
PRIOR APPLICATION NUMBER: US 60/068, 667  
PRIOR FILING DATE: 1997-12-23  
NUMBER OF SEQ ID NOS: 4  
SOFTWARE: PatentIn version 3.0  
SEQ ID NO 2  
LENGTH: 158  
TYPE: PRT  
ORGANISM: Homo sapiens  
US-09-826-210-2

Query Match 100.0%; Score 826; DB 10; Length 158;  
Best Local Similarity 100.0%; Pred. No. 3.2e-78;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 60  
DB 4 MAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHI 63  
QY 61 KLOLQAEERGVSVISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120  
DB 64 KLOLQAEERGVSVISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 123  
QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
DB 124 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 158

## RESULT 8

US-09-902-773A-4  
Sequence 4, Application US/09902773A  
Patent No. US20020034787A1  
GENERAL INFORMATION:  
APPLICANT: HU, JING-SHAN  
GOCAYNE, JEANNINE D.  
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-10  
NUMBER OF SEQUENCES: 14  
CORRESPONDENCE ADDRESS:  
ADDRESSEE: STERNE, KESSLER, GOLDSTEIN & FOX  
STREET: 1100 NEW YORK AVENUE, SUITE 600  
CITY: WASHINGTON  
STATE: DC  
COUNTRY: US  
ZIP: 20005-3934  
COMPUTER READABLE FORM:  
MEDIUM TYPE: Floppy disk  
COMPUTER: IBM PC compatible  
OPERATING SYSTEM: PC-DOS/MS-DOS  
SOFTWARE: PatentIn Release #1.0, Version #1.30  
CURRENT APPLICATION DATA:  
APPLICATION NUMBER: US/09/902, 773A  
FILING DATE: 12-Jul-2001  
CLASSIFICATION: <Unknown>  
PRIOR APPLICATION DATA:  
APPLICATION NUMBER: US/08/803, 926  
FILING DATE: 21-FEB-1997  
ATTORNEY/AGENT INFORMATION:  
NAME: STEFFE, ERIC K.  
REGISTRATION NUMBER: 36, 688  
REFERENCE/DOCKET NUMBER: 1488, 0350001  
TELECOMMUNICATION INFORMATION:  
TELEPHONE: (202) 371-2600  
TELEFAX: (202) 371-2540  
INFORMATION FOR SEQ ID NO: 4:  
SEQUENCE CHARACTERISTICS:  
LENGTH: 210 amino acids  
TYPE: amino acid  
STRANDEDNESS: single  
TOPOLOGY: linear  
MOLECULE TYPE: Protein  
SEQUENCE DESCRIPTION: SEQ ID NO: 4:  
US-09-902-773A-4



Query Match 100.0%; Score 826; DB 10; Length 210;  
Best Local Similarity 100.0%; Pred. No. 4,5e-78;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 60  
DB 56 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 115

QY 61 LQLOAEEGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 120  
DB 116 LQLOAEEGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 175

QY 121 TSMVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 176 TSMVALKRTGYKLGSKTGPQKAILFLPMSAKS 210

RESULT 9  
US-09-934-706-2  
Sequence 2, Application US/09934706  
Patent No. US20020102709A1  
GENERAL INFORMATION:  
APPLICANT: Terumo Corporation  
TITLE OF INVENTION: Functional Hybrid Polypeptide with Collagen-binding  
FILE REFERENCE: 19990120  
CURRENT APPLICATION NUMBER: US/09/934,706  
CURRENT FILING DATE: 2001-08-23  
NUMBER OF SEQ ID NOS: 16  
SOFTWARE:  
SEQ ID NO 2  
LENGTH: 159  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Human Basic  
OTHER INFORMATION: Fibroblast Growth Factor with Enterokinase  
OTHER INFORMATION: Recognition Sequence  
NAME/KEY: PEPTIDE  
LOCATION: (1)..(5)  
OTHER INFORMATION: /note="enterokinase recognition sequence"  
NAME/KEY: PEPTIDE  
LOCATION: (6)..(159)  
OTHER INFORMATION: /note="human fibroblast growth factor"  
US-09-934-706-2

Query Match 99.4%; Score 821; DB 10; Length 159;  
Best Local Similarity 100.0%; Pred. No. 1,1e-77;  
Matches 154; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 AAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 61  
DB 6 AAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 65

QY 62 LQLOAEEGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 121  
DB 66 LQLOAEEGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 125

QY 122 SWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 126 SWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 159

RESULT 10  
US-09-934-706-4  
Sequence 4, Application US/09934706  
Patent No. US20020102709A1  
GENERAL INFORMATION:  
APPLICANT: Terumo Corporation  
TITLE OF INVENTION: Functional Hybrid Polypeptide with Collagen-binding  
FILE REFERENCE: 19990120

CURRENT APPLICATION NUMBER: US/09/934,706  
CURRENT FILING DATE: 2001-08-23  
NUMBER OF SEQ ID NOS: 16  
SOFTWARE:  
SEQ ID NO 4  
LENGTH: 501  
TYPE: PRT  
ORGANISM: Artificial Sequence  
FEATURE:  
OTHER INFORMATION: Description of Artificial Sequence: Hybrid  
OTHER INFORMATION: Polypeptide of Human Fibronectin Collagen-Binding  
OTHER INFORMATION: Domain and Human Basic Fibroblast Growth Factor  
NAME/KEY: INIT \_MET  
LOCATION: (1)  
NAME/KEY: DOMAIN  
LOCATION: (2)..(341)  
OTHER INFORMATION: /note="human fibronectin collagen-binding domain"  
NAME/KEY: PEPTIDE  
LOCATION: (343)..(347)  
OTHER INFORMATION: /note="enterokinase recognition sequence"  
NAME/KEY: PEPTIDE  
LOCATION: (348)..(501)  
OTHER INFORMATION: /note="human fibroblast growth factor"  
US-09-934-706-4

Query Match 99.4%; Score 821; DB 10; Length 501;  
Best Local Similarity 100.0%; Pred. No. 4,1e-77;  
Matches 154; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 2 AAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 61  
DB 348 AAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 407

QY 62 LQLOAEEGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 121  
DB 408 LQLOAEEGVVSIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYRSRKY 467

QY 122 SWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
DB 468 SWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 501

RESULT 11  
US-09-802-365-6  
Sequence 6, Application US/09802365  
Patent No. US20020032153A1  
GENERAL INFORMATION:  
APPLICANT: Whitehouse, Martha Jo  
TITLE OF INVENTION: Methods and Compositions for the  
FILE REFERENCE: 1671,003  
CURRENT APPLICATION NUMBER: US/09/802,365  
CURRENT FILING DATE: 2001-03-09  
PRIOR APPLICATION NUMBER: 60/188,480  
PRIOR FILING DATE: 2000-03-10  
PRIOR APPLICATION NUMBER: 60/203,415  
PRIOR FILING DATE: 2000-05-11  
NUMBER OF SEQ ID NOS: 9  
SOFTWARE: FastSeq for Windows Version 4.0  
SEQ ID NO 6  
LENGTH: 155  
TYPE: PRT  
ORGANISM: Bos taurus  
US-09-802-365-6

Query Match 98.9%; Score 817; DB 10; Length 155;  
Best Local Similarity 98.7%; Pred. No. 2,6e-77;  
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 60  
DB 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFFLRHDPGRVDGVREKSDPHI 60

QY 61 KLQLOAEEGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY 120  
 DB 61 KLQLOAEEGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY 120  
 QY 121 TSMYVALKRTGQYKLGSKTGPQOKAILFLPMSAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQOKAILFLPMSAKS 155

## RESULT 12

US-09-886-856-6  
 Sequence 6, Application US/09886856  
 Patent No. US20020115603A1  
 GENERAL INFORMATION:  
 APPLICANT: Whitehouse, Martha Jo  
 TITLE OF INVENTION: Methods and Compositions for the  
 TITLE OF INVENTION: Treatment of Peripheral Artery Disease  
 FILE REFERENCE: PPI6090.004  
 CURRENT APPLICATION NUMBER: US/09/886,856  
 CURRENT FILING DATE: 2001-06-21  
 PRIOR APPLICATION NUMBER: 60/213,504  
 PRIOR FILING DATE: 2000-06-22  
 PRIOR APPLICATION NUMBER: 60/264,572  
 PRIOR FILING DATE: 2000-01-26  
 PRIOR APPLICATION NUMBER: 60/276,549  
 PRIOR FILING DATE: 2001-03-16  
 NUMBER OF SEQ ID NOS: 9  
 SOFTWARE: FastSeq for Windows Version 4.0  
 SEQ ID NO 6  
 LENGTH: 155  
 TYPE: PRT  
 ORGANISM: Bos taurus  
 US-09-886-856-6

Query Match 98.9%; Score 817; DB 10; Length 155;  
 Best Local Similarity 98.7%; Pred. No. 2,6e-77;  
 Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGGGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGGGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLQLOAEEGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY 120  
 DB 61 KLQLOAEEGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY 120  
 QY 121 TSMYVALKRTGQYKLGSKTGPQOKAILFLPMSAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQOKAILFLPMSAKS 155

## RESULT 13

US-10-016-447-8  
 Sequence 8, Application US/10016447  
 Patent No. US20020090651A1  
 GENERAL INFORMATION:  
 APPLICANT: Kirschner, Marc W.  
 APPLICANT: Kirschner, Marc W.  
 APPLICANT: Kirschner, Marc W.  
 TITLE OF INVENTION: Receptor-Ligand Assay  
 FILE REFERENCE: HU95-01A2  
 CURRENT APPLICATION NUMBER: US/10/016,447  
 CURRENT FILING DATE: 2001-12-10  
 PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: US/08/776,207  
 PRIOR FILING DATE: EARLIER FILING DATE: 1997-06-23  
 PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 08/441,629  
 PRIOR FILING DATE: EARLIER FILING DATE: 1995-05-15  
 PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 08/279,217  
 PRIOR FILING DATE: EARLIER FILING DATE: 1994-07-22  
 NUMBER OF SEQ ID NOS: 18  
 SOFTWARE: FastSeq for Windows Version 3.0  
 SEQ ID NO 8  
 LENGTH: 150  
 TYPE: PRT

ORGANISM: Homo sapien  
 US-10-016-447-8

Query Match 97.3%; Score 804; DB 12; Length 150;  
 Best Local Similarity 100.0%; Pred. No. 5.6e-76;  
 Matches 150; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGGGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAAGSITTLPALPEDGGGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60  
 QY 61 KLQLOAEEGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY 120  
 DB 61 KLQLOAEEGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY 120  
 QY 121 TSMYVALKRTGQYKLGSKTGPQOKAILFLP 150  
 DB 121 TSMYVALKRTGQYKLGSKTGPQOKAILFLP 150

## RESULT 14

US-10-131-965-3  
 Sequence 3, Application US/10131965  
 Patent No. US20020165160A1  
 GENERAL INFORMATION:  
 APPLICANT: Whitehouse, Martha J.  
 APPLICANT: Kavanaugh, Michael W.  
 TITLE OF INVENTION: Angiogenetically Effective Unit Dose of FGF and Method of  
 TITLE OF INVENTION: Administering  
 FILE REFERENCE: 1296/12169US05  
 CURRENT APPLICATION NUMBER: US/10/131,965  
 CURRENT FILING DATE: 2002-04-25  
 PRIOR APPLICATION NUMBER: US/09/417,721  
 PRIOR FILING DATE: 1999-10-13  
 PRIOR APPLICATION NUMBER: 60/104,103  
 PRIOR FILING DATE: 1998-10-13  
 NUMBER OF SEQ ID NOS: 15  
 SOFTWARE: Patentin Ver. 2.0  
 SEQ ID NO 3  
 LENGTH: 146  
 TYPE: PRT  
 ORGANISM: Human FGF-2  
 US-10-131-965-3

Query Match 95.0%; Score 785; DB 9; Length 146;  
 Best Local Similarity 100.0%; Pred. No. 4.9e-74;  
 Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 10 PALPEDGGGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI KLQLOAEE 69  
 DB 1 PALPEDGGGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI KLQLOAEE 60  
 QY 70 GVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY TSMYVALKR 129  
 DB 61 GVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNNTYRSRKY TSMYVALKR 120

QY 130 TGOYKLGSKTGPQOKAILFLPMSAKS 155  
 DB 121 TGOYKLGSKTGPQOKAILFLPMSAKS 146

## RESULT 15

US-09-802-365-4  
 Sequence 4, Application US/09802365  
 Patent No. US20020032153A1  
 GENERAL INFORMATION:  
 APPLICANT: Whitehouse, Martha Jo  
 TITLE OF INVENTION: Methods and Compositions for the  
 TITLE OF INVENTION: Treatment and Prevention of Erectile Dysfunction  
 FILE REFERENCE: 1671.003  
 CURRENT APPLICATION NUMBER: US/09/802,365  
 CURRENT FILING DATE: 2001-03-09  
 PRIOR APPLICATION NUMBER: 60/188,480

/ PRIOR FILING DATE: 2000-03-10  
/ PRIOR APPLICATION NUMBER: 60/203,415  
/ PRIOR FILING DATE: 2000-05-11  
/ NUMBER OF SEQ ID NOS: 9  
/ SOFTWARE: FastSeq for Windows Version 4.0  
/ SEQ ID NO 4  
/ LENGTH: 146  
/ TYPE: PRT  
/ ORGANISM: Homo sapiens  
US-09-802-365-4

Query Match 95.0%; Score 785; DB 10; Length 146;  
Best Local Similarity 100.0%; Pred. No. 4.9e-74;  
Matches 146; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 10 PALPEDGGGAFPPGHFKDPKRLVCKNGGFLLRHPDGRVDGVREKSDPHIKLQQAER 69  
Db 1 PALPEDGGGAFPPGHFKDPKRLVCKNGGFLLRHPDGRVDGVREKSDPHIKLQQAER 60  
QY 70 GVVSIGVCANRYLAMKEDGRLLASKCVTDECFPERLESNNNTYRSRKYTSWYVALKR 129  
Db 61 GVVSIGVCANRYLAMKEDGRLLASKCVTDECFPERLESNNNTYRSRKYTSWYVALKR 120  
QY 130 TGQYKLGSKTGPQKAILFLPMSAKS 155  
Db 121 TGQYKLGSKTGPQKAILFLPMSAKS 146

Search completed: December 16, 2002, 17:56:31  
Job time : 7.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:53:20 ; Search time 14.5 Seconds  
(without alignments)  
1027.644 Million cell updates/sec

Title: 'US-09-886-856-8  
Perfect score: 826  
Sequence: 1 MAAGSTTTPALPEDGSGA.....GSKTGPQKALFLPMASAKS 155

Scoring table: BLOSUM62  
Gapop 10.0, Gapext 0.5

Searched: 283224 seqs, 96134422 residues  
Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0  
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%  
Maximum Match 100%  
Listing first 45 summaries

Database :  
1: PIR 73: \*  
2: PIR2: \*  
3: PIR3: \*  
4: PIR4: \*

Pred. No. is the number of results predicted by chance to have a  
score greater than or equal to the score of the result being printed,  
and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	826	100.0	210	2	A32398
2	817	98.9	157	2	GKBOB
3	798.5	96.7	154	2	A31674
4	783.5	94.9	154	2	C37360
5	770	93.2	146	1	S00185
6	760.5	92.1	164	2	S31622
7	759	91.9	189	2	A48834
8	738	89.3	137	2	I46711
9	687	83.2	155	1	A40117
10	468.5	56.7	125	2	A32484
11	418.5	50.7	155	1	A60721
12	410.5	49.7	155	2	A60130
13	409.5	49.6	155	1	A33665
14	404.5	49.0	155	2	S04147
15	404.5	49.0	155	2	D37360
16	403.5	48.8	152	2	JH0476
17	395.5	47.9	155	2	JH0055
18	393.5	47.6	155	1	GKBOA
19	265	32.1	194	1	I50710
20	255.5	30.9	206	1	TVH0HS
21	253	30.6	206	1	JC4627
22	251	30.4	220	2	I50588
23	250	30.3	208	2	S14192
24	249	30.1	208	2	S20102
25	247.5	30.0	206	2	JC4268
26	247.5	29.4	264	2	A36207
27	242.5	29.4	266	2	S68144
28	241.5	29.2	202	1	TVH0HS
29	239	28.9	187	2	S23593

30	237.5	28.8	237	1	S39582	transforming prote
31	237	28.7	245	1	TVH0ST2	transforming prote
32	236	28.6	239	1	S04742	fibroblast growth
33	234.5	28.4	192	2	S54407	embryonic fibrobla
34	233	28.2	267	1	TVH0FS	fibroblast growth
35	217	26.3	208	2	S66486	fibroblast growth
36	217	26.3	208	2	A48137	fibroblast growth
37	210	25.4	211	2	JC7353	fibroblast growth
38	209.5	25.4	194	2	I48610	keratinocyte growth
39	208	25.2	208	2	JC7082	fibroblast growth
40	207.5	25.1	194	1	A36301	fibroblast growth
41	207.5	25.1	194	2	S26049	fibroblast growth
42	207.5	25.1	194	2	S49501	keratinocyte growth
43	206.5	25.0	207	2	JC5940	fibroblast growth
44	205.5	24.9	207	2	JC5941	fibroblast growth
45	204	24.7	212	2	JC7511	fibroblast growth

## ALIGNMENTS

## RESULT 1

basic fibroblast growth factor precursor, 22.5K form - human  
A32398  
N:Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prostatic growth factor; prostatic growth factor, 18K form  
C:Species: Homo sapiens (man)  
C:Date: 31-Jul-1989 #sequence revision 31-Dec-1993 #text change 21-Jul-2000  
C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B53316; A33624; A25824; B24  
R:Prater, H.; Kagnad, M.; Prater, A.C.; Klagesbrun, M.; Lellies, J.M.; Liauzun, P.; Chalon, P.  
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989  
A:Title: High molecular mass forms of basic fibroblast growth factor are initiated by a1  
A:Reference number: A32398; MUID:89184522; PMID:2538817  
A:Accession: A32398  
A:Molecule type: mRNA  
A:Residues: 1-210 <PRA>  
A:Cross-references: GB:004513; NID:G183083; PIDN:AAA52531.1; PID:G459811  
R:Shibata, F.; Baird, A.; Florkiewicz, R.Z.  
Growth Factors 4, 277-287, 1991  
A:Title: Functional characterization of the human basic fibroblast growth factor gene pr  
A:Reference number: A61537; MUID:92110035; PMID:1764264  
A:Accession: A61537  
A:Molecule type: DNA  
A:Residues: 1-114 <SHI>  
A:Note: Authors translated the codon GGA for residue 47 as Ala  
R:Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.  
FEBS Lett. 213, 189-194, 1987  
A:Title: Cloning and expression of cDNA encoding human basic fibroblast growth factor.  
A:Reference number: A26642; MUID:87162468; PMID:2435575  
A:Accession: A26642  
A:Molecule type: mRNA  
A:Residues: 56-210 <KUR>  
A:Cross-references: GB:M27968; NID:G182562; PIDN:AAA52448.1; PID:G182563  
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; F  
EMBO J. 5, 2523-2528, 1986  
A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization  
A:Reference number: A90924; MUID:87217066; PMID:3472745  
A:Accession: B32878  
A:Molecule type: mRNA  
A:Residues: 56-210 <ABR>  
A:Note: The authors translated the codon GAA for residue 108 as Gly  
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D.; F  
EMBO J. 5, 2523-2528, 1986  
A:Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organization  
A:Reference number: S00297; MUID:87053817; PMID:3780670  
A:Accession: S00297  
A:Status: not compared with conceptual translation  
A:Molecule type: DNA  
A:Residues: 1-155 <AB2>  
A:Note: The authors translated the codon GAA for residue 108 as Gly  
R:Shimoyama, Y.; Gotch, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.  
Jpn. J. Cancer Res. 82, 1263-1270, 1991  
A:Title: Characterization of high-molecular-mass forms of basic fibroblast growth factor

rctinogenesis.  
 A:Reference number: A54316; MUID:92091228; PMID:1721615  
 A:Accession: A54316  
 A:Molecule type: protein  
 A:Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>  
 A:Note: sequence extracted from NCBI database (NCBI:71594)  
 A:Experimental source: C-1421 hepatocellular carcinoma cell line  
 A:Note: sequence extracted from NCBI database (NCBI:71595)  
 A:Accession: B54316  
 A:Molecule type: protein  
 A:Residues: 'XXX', 19, 'X', 21-29 <SH2>  
 A:Note: sequence extracted from NCBI database (NCBI:71594)  
 A:Experimental source: C-1421 hepatocellular carcinoma cell line  
 A:Note: sequence extracted from NCBI database (NCBI:71595)  
 A:Cell Biol. 109, 3105-3114, 1989  
 A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation  
 A:Reference number: A33624; MUID:90078343; PMID:2592418  
 A:Accession: A33624  
 A:Molecule type: protein  
 A:Status: preliminary  
 A:Residues: 57-210 <FEI>  
 A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate  
 A:Reference number: A25824; MUID:87156686; PMID:2435284  
 A:Accession: A25824  
 A:Molecule type: protein  
 A:Residues: 57-77 <SNO>  
 A:Experimental source: prostate  
 A:Gomez-Gallardo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986  
 A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal  
 A:Reference number: A90122; MUID:86186784; PMID:3964259  
 A:Accession: B24243  
 A:Molecule type: protein  
 A:Residues: 65-102, 'X', 104-105 <GIN>  
 A:Experimental source: brain  
 A:Gauche, P.; Prater-Schroder, M.; Bohlen, P.  
 FEBS Lett. 204, 203-207, 1986  
 A:Title: Partial molecular characterization of endothelial cell mitogens from human brain  
 A:Reference number: A91364; MUID:86275260; PMID:3732516  
 A:Accession: B24301  
 A:Molecule type: protein  
 A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAU>  
 A:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.  
 Biochem. Biophys. Res. Commun. 144, 543-550, 1987  
 A:Title: A form of human basic fibroblast growth factor with an extended amino terminus.  
 A:Reference number: S42242; MUID:87213238; PMID:3579330  
 A:Accession: S42242  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 54-210 <SOM>  
 A:Cross-references: EMBL:M17599; NID:G183086; PIDN:AAA52534.1; PID:G183087  
 A:Partridge, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobey, T.; Wetmore, D.  
 Biochemistry 33, 10229-10248, 1994  
 A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor  
 A:Reference number: A55784; MUID:94347757; PMID:7520751  
 A:Accession: B55784  
 A:Molecule type: protein  
 A:Residues: 54-71 <PAN>  
 A:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.  
 Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992  
 A:Title: Reverse transcription with nested polymerase chain reaction shows expression of  
 A:Reference number: 152267; MUID:93038590; PMID:1417798  
 A:Accession: 152267  
 A:Status: preliminary; translated from GB/EMBL/DDBJ  
 A:Molecule type: mRNA  
 A:Residues: 95-182 <RBS>  
 A:Cross-references: GB:S47380; NID:G256535; PIDN:AAI13653.1; PID:G4261553  
 A:Experimental source: granulosa cells  
 A:Parry, V.; Buglier, B.; Amalric, F.; Prome, J.C.; Prats, H.  
 FEBS Lett. 349, 23-28, 1994  
 A:Title: Purification and characterization of the 210-amino acid recombinant basic fibro  
 A:Reference number: S46253; MUID:94320639; PMID:8045296

A:Accession: S46253  
 A:Molecule type: protein  
 A:Residues: 39-53, 65-88 <PAT>  
 A:Note: recombinant gene expressed in Escherichia coli  
 A:Genetic: GDB:FGF2; FGF2  
 A:Cross-references: GDB:119910; OMIM:134920  
 A:Map position: 4q25-4q27  
 A:Start codon: CNG  
 A:Superfamily: fibroblast growth factor  
 C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mitoge  
 F:1-210/Product: basic fibroblast growth factor, 22.5k form #status predicted <MA2>  
 F:65-210/Product: basic fibroblast growth factor, 18k form #status predicted <MA2>  
 F:82-86/Region: heparin binding #status predicted  
 F:111-174/Region: heparin binding #status predicted  
 Query Match 100.0%; Score 826; DB 2; Length 210;  
 Best Local Similarity 100.0%; Pred. No. 3.8e-74;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;  
 QY 1 MAASITTLPLPDDGSGAAPPDGHFKDPRKLYCKNGGFLRLHPDGRVGVREKSPHI 60  
 Db 56 MAASITTLPLPDDGSGAAPPDGHFKDPRKLYCKNGGFLRLHPDGRVGVREKSPHI 115  
 QY 61 KLQQAEEGVVSIKVCARVYLAMKEDGRLASCKVTDCEFFERLESNNVTYRSRY 120  
 Db 116 KLQQAEEGVVSIKVCARVYLAMKEDGRLASCKVTDCEFFERLESNNVTYRSRY 175  
 QY 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
 Db 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210  
 RESULT 2  
 GSKGB  
 basic fibroblast growth factor precursor - bovine (fragment)  
 N:Alternate names: bFGF; kidney-derived growth factor; prostatiotin  
 C:Species: Bos primigenius taurus (cattle)  
 C:Date: 13-Aug-1986 #sequence revision 02-Jun-1995 #text change 24-Nov-1999  
 C:Accession: A24663; A32878; A33784; A61550; A60310; A61094; A01386; A60316; A2  
 Science 233, 545-548, 1986  
 A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic f  
 A:Reference number: A94290; MUID:86281806; PMID:2425435  
 A:Accession: A24663  
 A:Molecule type: mRNA  
 A:Residues: 3-157 <ABR>  
 A:Cross-references: GB:M13440; NID:G163049; PIDN:AAA30518.1; PID:G163050  
 A:Experimental source: pituitary gland  
 A:Abraham, J.A.; Whang, J.L.; Tumbolo, A.; Mergia, A.; Fiddes, J.C.  
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986  
 A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization  
 A:Reference number: A90924; MUID:87217066; PMID:3472745  
 A:Accession: A32878  
 A:Molecule type: mRNA  
 A:Residues: 3-157 <ABR>  
 A:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.  
 Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989  
 A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purific  
 A:Reference number: A33784; MUID:90121211; PMID:2610682  
 A:Accession: A33784  
 A:Molecule type: protein  
 A:Residues: 1-14 <ML>  
 A:Note: demonstration of a possible alternative initiator or splice junction  
 A:Berthel, J.; Hearn, M.T.W.  
 Mol. Cell. Endocrinol. 51, 187-199, 1987  
 A:Title: Isolation, characterisation and tissue localisation of an N-terminal-truncated  
 A:Reference number: A61550; MUID:87247652; PMID:3596000  
 A:Accession: A61550  
 A:Molecule type: protein  
 A:Residues: 16-35 <BER>  
 A:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
 Mol. Cell. Endocrinol. 49, 189-194, 1987

A>Title: Isolation and partial characterization of basic fibroblast growth factor from H  
 A/Reference number: A61551; MUID:87162856; PMID:3556754  
 A/Accession: A61551  
 A/Molecule type: protein  
 A/Residues: 27-35, 'X', 37-41 <UE3>  
 A/Experimental source: testes  
 A/Note: this form appears to be identical to the renal form  
 R/Ueno, N.; Baird, A.; Esch, F.; Shimazaki, S.; Ling, N.; Guillemin, R.  
 Regul. Pept. 16, 135-145, 1986  
 A>Title: Purification and partial characterization of a mitogenic factor from bovine liv  
 A/Reference number: A60310; MUID:87119165; PMID:3809608  
 A/Accession: A60310  
 A/Molecule type: protein  
 A/Residues: 23-35, 'X', 37-42 <UEN>  
 A/Experimental source: liver  
 R/Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.  
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986  
 A>Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.  
 A/Reference number: A24819; MUID:86295737; PMID:3741423  
 A/Contents: annotation  
 A/Note: the amino end of this form was blocked; the peptide composition matched what was  
 R/Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.  
 Endocrinology 118, 82-90, 1986  
 A>Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemica  
 A/Reference number: A61094; MUID:86081530; PMID:3940857  
 A/Accession: A61094  
 A/Molecule type: protein  
 A/Residues: 12-25, 27-35, 'X', 37-40 <GOS>  
 A/Experimental source: adrenal gland  
 R/Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Demeroy, L.; Klepper, R.; Gospodar  
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985  
 A>Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and  
 A/Reference number: A01386; MUID:86016731; PMID:3863109  
 A/Accession: A01386  
 A/Molecule type: protein  
 A/Residues: 12-157 <ESG>  
 A/Experimental source: pituitary gland  
 R/Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.  
 Regul. Pept. 12, 201-213, 1985  
 A>Title: Isolation and partial characterization of an endothelial cell growth factor fro  
 A/Reference number: A60316; MUID:86095426; PMID:4681126  
 A/Accession: A60316  
 A/Molecule type: protein  
 A/Residues: 27-35, 'X', 37-43 <BAI>  
 A/Experimental source: kidney  
 R/Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.  
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984  
 A>Title: Isolation and partial molecular characterization of pituitary fibroblast growth  
 A/Reference number: A22054; MUID:84298139; PMID:6591194  
 A/Accession: A22054  
 A/Molecule type: protein  
 A/Residues: 12-26 <BOH>  
 A/Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell  
 cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating b  
 C/Comment: This protein binds heparin more strongly than does aFGF.  
 C/Superfamily: fibroblast growth factor  
 C/Keyword: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari  
 F/1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MT1>  
 F/1-157/Product: basic fibroblast growth factor, pituitary gamma form #status experiment  
 F/12-157/Product: basic fibroblast growth factor, pituitary alpha form #status experiment  
 F/16-157/Product: basic fibroblast growth factor, pituitary short form #status predicted  
 F/23-157/Product: basic fibroblast growth factor, hepatic form #status experimental <MT  
 F/27-157/Product: basic fibroblast growth factor, renal form #status experimental <MT>  
 F/29-33/118-121/Region: heparin binding #status predicted  
 F/4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

Query Match 98.3%; Score 817; DB 1; Length 157;  
 Best Local Similarity 98.7%; Pred. No. 2, 1e-73;  
 Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 1 MAAGSTTLPALPEDGGGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60  
 DB 3 MAAGSTTLPALPEDGGGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 62

OY 61 KLOQAEERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFPERLESNNYNTYRSRY 120  
 DB 63 KLOQAEERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFPERLESNNYNTYRSRY 122  
 OY 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
 DB 123 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 157  
 RESULT 3  
 A31674  
 basic fibroblast growth factor precursor - rat  
 N/Alternate names: bFGF  
 C/Species: Rattus norvegicus (Norway rat)  
 C/Date: 21-May-1990 #sequence\_revision 21-May-1990 #text\_change 16-Jul-1999  
 C/Accession: A31674; S00876; S24309  
 R/Shimazaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.;  
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988  
 A>Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth  
 A/Reference number: A31674; MUID:89061721; PMID:3196337  
 A/Accession: A31674  
 A/Molecule type: mRNA  
 A/Residues: 1-154 <SHI>  
 A/Cross-references: GB:M22427; NID:G204285; PIDN:AAA41210.1; PID:G204286  
 R/Kurokawa, T.; Seno, M.; Igarashi, K.  
 Nucleic Acids Res. 16, 5201, 1988  
 A>Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.  
 A/Reference number: S00876; MUID:88262516; PMID:3387229  
 A/Accession: S00876  
 A/Molecule type: mRNA  
 A/Residues: 1-154 <KUN>  
 A/Cross-references: EMBL:X07285; NID:G56203; PIDN:CAA30265.1; PID:G56204  
 R/El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.  
 Biochim. Biophys. Acta 1131, 314-316, 1992  
 A>Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA cont.  
 A/Reference number: S24309; MUID:92329546; PMID:1378302  
 A/Accession: S24309  
 A/Status: preliminary; translation not shown  
 A/Molecule type: mRNA  
 A/Residues: 35-154 <ELH>  
 A/Cross-references: EMBL:X61697; NID:G56143; PIDN:CAA43863.1; PID:G56144  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor  
 F/1-9/Domain: signal sequence #status predicted <SIG>  
 F/10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match 96.7%; Score 798.5; DB 2; Length 154;  
 Best Local Similarity 96.8%; Pred. No. 1, 4e-71;  
 Matches 150; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

OY 1 MAAGSTTLPALPEDGGGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHI 60  
 DB 1 MAAGSTTLPALPEDGGGAFPPGHFKDPRKLYCKNGGFFLRHPDGRVGVREKSDPHV 59  
 OY 61 KLOQAEERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFPERLESNNYNTYRSRY 120  
 DB 60 KLOQAEERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFPERLESNNYNTYRSRY 119  
 OY 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155  
 DB 120 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 154

RESULT 4  
 C37360  
 basic fibroblast growth factor - mouse  
 C/Species: Mus musculus (house mouse)  
 C/Date: 17-Apr-1993 #sequence\_revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C/Accession: C37360  
 R/Hebert, J.M.; Basillart, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A>Title: Isolation of cDNAs encoding four mouse FGF family members and characterization

A:Reference number: A37360; MUID:90201563; PMID:2318343

A:Accession: C37360

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-154 <HEB>

A:Cross-references: GB:M30644; NID:G193296; PIDN:AAA37621.1; PID:G309239

C:Superfamily: fibroblast growth factor

Query Match 94.9%; Score 783.5; DB 2; Length 154;

Best Local Similarity 94.8%; Pred. No. 4.3e-70; Indels 1; Gaps 1;

Matches 147; Conservative 5; Mismatches 2; Indels 1; Gaps 1;

Qy 1 MAAGSITLPLPEDGGGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHI 60

Db 1 MAAGSITLPLPEDGGA-APPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHV 59

Qy 61 KLQLOAERGVSIVKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRK 120

Db 60 KLQLOAERGVSIVKVCANRYLAMKEDGRLLASKCVTECFPERLESNNYNTYRSRK 119

Qy 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

Db 120 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 154

RESULT 5

basic fibroblast growth factor - sheep

N:Alternate names: prostactropin

C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C>Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999

C:Accession: S00185

R:Simpson, R.D.; Moritz, R.L.; Lloyd, C.J.; Fabril, L.J.; Nice, E.C.; Rubira, M.R.; Burge

FEBS lett. 224, 128-132, 1987

A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.

A:Reference number: S00185; MUID:88055577; PMID:3678486

A:Accession: S00185

A:Molecule type: protein

A:Residues: 1-146 <SIM>

A:Superfamily: fibroblast growth factor

C:Keywords: growth factor; heparin binding; mitogen

F;18-22/Region: heparin binding #status predicted

F;107-110/Region: heparin binding #status predicted

Query Match 93.2%; Score 770; DB 1; Length 146;

Best Local Similarity 97.9%; Pred. No. 8.6e-69; Indels 0; Gaps 0;

Matches 143; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 10 PALPEDGGGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHIKLQLOAER 69

Db 1 PALPEDGGGSAFPFGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHIKLQLOAER 60

Qy 70 GVSIVKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRKYSWYVALKR 129

Db 61 GVSIVKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRKYSWYVALKR 120

Qy 130 TGOYKLGSKTGPQKAILFLPMSAKS 155

Db 121 TGOYKLGSKTGPQKAILFLPMSAKS 146

RESULT 6

basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragment)

C:Species: Monodelphis domestica

C>Date: 20-Feb-1995 #sequence\_revision 20-Feb-1995 #text\_change 12-Apr-1995

C:Accession: S31622

R:Kusevitz, D.F.; Sabourin, C.L.K.; Budge, C.L.; Lay, R.D.

submitted to the EMBL Data Library, September 1992

A:Description: Characterization of cDNA encoding basic fibroblast growth factor of the m

A:Reference number: S31622

A:Accession: S31622

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-164 <XUS>

A:Cross-references: EMBL:Z15154

C:Superfamily: fibroblast growth factor

Query Match 92.1%; Score 760.5; DB 2; Length 164;

Best Local Similarity 92.9%; Pred. No. 8.6e-68; Indels 1; Gaps 1;

Matches 145; Conservative 5; Mismatches 5; Indels 1; Gaps 1;

Qy 1 MAAGSITLPLPEDD-GGSGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHI 59

Db 9 MAAGSITLPLPSGDDGGGGAFFPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHI 68

Qy 60 IKLOAERGVSIVKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRK 119

Db 69 IKLOAERGVSIVKVCANRYLAMKEDGRLLASKCVTECFPERLESNNYNTYRSRK 128

Qy 120 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

Db 129 YSNWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 164

RESULT 7

basic fibroblast growth factor - chicken

C:Species: Gallus gallus (chicken)

C>Date: 01-Dec-1993 #sequence\_revision 18-Nov-1994 #text\_change 16-Jul-1999

C:Accession: A48834; S23636

R:Bojia, A.Z.; Meijers, C.; Zeller, R.

Dev. Biol. 157, 110-118, 1993

A:Title: Expression of alternatively spliced bFGF first coding exons and antisense mRNA.

A:Reference number: A48834; MUID:93246053; PMID:7683281

A:Accession: A48834

A:Status: preliminary

A:Molecule type: nucleic acid

A:Residues: 1-189 <BOR>

A:Experimental source: embryo

A>Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBI:131001)

R:Miltrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.

Development 109, 387-393, 1990

A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo.

A:Reference number: S23636; MUID:90382254; PMID:2401202

A:Accession: S23636

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 95-128 <MIT>

A:Cross-references: EMBL:X56804; NID:G62855; PIDN:CAA40139.1; PID:G62856

C:Superfamily: fibroblast growth factor

Query Match 91.9%; Score 759; DB 2; Length 189;

Best Local Similarity 92.2%; Pred. No. 1.4e-67; Indels 0; Gaps 0;

Matches 142; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

Qy 2 AAGSITLPLPEDGGGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHIK 61

Db 36 AAGSITLPLPEDGGGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVRKSDPHIK 95

Qy 62 LQLOAERGVSIVKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRK 121

Db 96 LQLOAERGVSIVKVCANRYLAMKEDGRLLASKCVTECFPERLESNNYNTYRSRK 155

Qy 122 SWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

Db 156 DWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 189

RESULT 8

fibroblast growth factor - rabbit (fragment)

C:Species: Oryctolagus cuniculus (domestic rabbit)

C>Date: 14-Feb-1997 #sequence\_revision 14-Feb-1997 #text\_change 16-Jul-1999

C:Accession: I46711

R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liao, G.

Am. J. Pathol. 143, 518-527, 1993  
 A>Title: Elevated expression of basic fibroblast growth factor in an immortalized rabbit  
 A/Reference number: 146711; MUID:93343209; PMID:8342559  
 A/Accession: 146711  
 A/Status: preliminary; translated from GB/EMBL/DBJ  
 A/Molecule type: mRNA  
 A/Residues: 1-137 <MIN>  
 A/Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra  
 A/Reference number: GB:112034; NID:g165014; PIDN:AAA31248.1; PID:g165015  
 C/Superfamily: fibroblast growth factor

Query Match 89.3%; Score 738; DB 2; Length 137;  
 Best Local Similarity 99.3%; Pred. No. 1,2e-65;  
 Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 10 PALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHIKLOLOAER 69  
 DB 1 PALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHIKLOLOAER 60  
 QY 70 GVSIVKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKYTSWYVALKR 129  
 DB 61 GVSIVKVCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKYTSWYVALKR 120  
 QY 130 TGOYKLGSKTGPQKAI 146  
 DB 121 TGOYKLGSKTGPQKAI 137

# RESULT 9

basic fibroblast growth factor - African clawed frog

C/Species: Xenopus laevis (African clawed frog)  
 C/Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 A/Accession: A40117; A29618  
 R/Kimelman, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.  
 Science 242, 1053-1056, 1998  
 A>Title: The presence of fibroblast growth factor in the frog egg: its role as a natural  
 A/Reference number: A40117; MUID:99058621; PMID:3194757  
 A/Accession: A40117  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <KIM>  
 A/Cross-References: GB:M18067; NID:g214177; PIDN:AAA49726.1; PID:g214178; GB:M21092  
 R/Kimelman, D.; Kirschner, M.  
 Cell 51, 869-877, 1987  
 A>Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of  
 A/Reference number: A29618; MUID:88052890; PMID:3479265  
 A/Accession: A29618  
 A/Molecule type: mRNA  
 A/Residues: 95-110,112-155 <K12>  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor

Query Match 83.2%; Score 687; DB 1; Length 155;  
 Best Local Similarity 83.9%; Pred. No. 1.5e-60;  
 Matches 130; Conservative 9; Mismatches 16; Indels 0; Gaps 0;

QY 1 MAASITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHI 60  
 DB 1 MAASITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHI 60  
 QY 61 KLOLOAERGVVSIKGYCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKY 120  
 DB 61 KLOLOAERGVVSIKGYCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKY 120  
 QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155

RESULT 10  
 A32484  
 basic fibroblast growth factor precursor, 25k - guinea pig (fragments)  
 C/Species: Cavia porcellus (guinea pig)

C/Date: 20-Oct-1989 #sequence\_revision 20-Oct-1989 #text\_change 15-Jun-1996  
 C/Accession: A32484  
 R/Sommer, A.; Moscatelli, D.; Rifkin, D.B.  
 Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989  
 A>Title: An amino-terminally extended and post-translationally modified form of a 25kD b  
 A/Reference number: A32484; MUID:89273588; PMID:2730645  
 A/Accession: A32484  
 A/Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra  
 A/Molecule type: mRNA  
 A/Residues: 1-125 <SOM>  
 C/Superfamily: fibroblast growth factor

Query Match 56.7%; Score 468.5; DB 2; Length 125;  
 Best Local Similarity 63.2%; Pred. No. 4.4e-39;  
 Matches 98; Conservative 2; Mismatches 4; Indels 51; Gaps 3;

QY 1 MAASITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHI 60  
 DB 22 MAASITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHI 57  
 QY 61 KLOLOAERGVVSIKGYCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKY 120  
 DB 58 -LOLOAERD-----CVTDCFFERLESNNVTYSRKY 90  
 QY 121 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 91 TSWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 125

# RESULT 11

acidic fibroblast growth factor - golden hamster  
 C/Species: Mesocricetus auratus (golden hamster)  
 C/Date: 10-Sep-1999 #sequence\_revision 10-Sep-1999 #text\_change 10-Sep-1999  
 A/Accession: A60721  
 R/Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.  
 J. Cell. Biochem. 43, 17-26, 1990  
 A>Title: Characterization of the hamster DPT-1 cell aFGF/HGPF-I gene and cDNA and its mo  
 A/Reference number: A60721; MUID:90270291; PMID:1693366  
 A/Accession: A60721  
 A/Status: not compared with conceptual translation  
 A/Molecule type: DNA  
 A/Residues: 1-155 <HAL>  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor, heparin binding

Query Match 50.7%; Score 418.5; DB 1; Length 155;  
 Best Local Similarity 54.8%; Pred. No. 4.9e-34;  
 Matches 86; Conservative 16; Mismatches 50; Indels 5; Gaps 2;

QY 1 MAASITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHI 60  
 DB 1 MAASITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVEKSDPHI 57  
 QY 61 KLOLOAERGVVSIKGYCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKY 120  
 DB 58 KLOLOAERGVVSIKGYCANRYLAMKEDGRLASKCVTDCEFFERLESNNVTYSRKY 117  
 QY 121 T--SWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 118 AEKMWFGVGLKKNKSGCKRGPRTHYGOKAILFLPMSAKS 154

RESULT 12  
 A60130  
 acidic fibroblast growth factor - chicken  
 N/Alternate names: endochelial cell growth factor  
 C/Species: Gallus gallus (chicken)  
 C/Date: 03-Mar-1993 #sequence\_revision 03-Mar-1993 #text\_change 16-Jul-1999  
 A/Accession: A60130; S07639  
 R/Schmuerch, H.; Risau, W.  
 Development 111, 1143-1154, 1991



A>Title: Differentiating and mature neurons express the acidic fibroblast growth factor  
 A/Reference number: A60130; MUID:91347925; PMID:1715259  
 A/Accession: A60130  
 A/Status: preliminary  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <SCG>  
 A/Cross-references: GB:S63263; NID:G234372; PIDN:AB19629.1; PID:G234373  
 R:Riau, W.; Gautschi-Sova, P.; Boehlen, P.  
 EMO J. 7, 959-962, 1988  
 A>Title: Endothelial cell growth factors in embryonic and adult chick brain are related  
 A/Reference number: S02639; MUID:88296438; PMID:3402441  
 A/Accession: S02639  
 A/Molecule type: protein  
 A/Residues: 22-30 'X', 32-44 'X', 46-48 <RIS>  
 C/Superfamily: fibroblast growth factor  
 C/Keywords: growth factor

Query Match 49.7%; Score 410.5; DB 2; Length 155;  
 Best Local Similarity 54.9%; Pred. No. 3e-33;  
 Matches 84; Conservative 20; Mismatches 44; Indels 5; Gaps 2;

QY 1 MAAGITTLPALPEDGGGAPPPGHPKDPKRLYCCKGFFLHPDGRVDGVREKSDPHI 60  
 Db 1 MAEGITFTLTERFG--LPLGVKKKFKLDCSNGHFRLILPDGKVDGTRSDPHI 57  
 QY 61 KLQLOAERGVVSIKGVANRLAMKEDGRLLAKCVTDECFPFERLESNNYNTSRKY 120  
 Db 58 QLOLSAEVDGEVYIKSTASGOYLADTNGLLYGSQDPGECEFLERLENNYNTISKH 117  
 QY 121 T--SWYVALKRTGYKLGSKTGPQKAILFLPM 151  
 Db 118 ADKNWFLVKLKNKNSKLGERTHYGKAILFLPL 150

RESULT 13  
 A33665  
 A/Title: acidic fibroblast growth factor 1 precursor [validated] - human  
 N/Alternate names: beta-BCGF; endothelial cell growth factor beta; heparin-binding growth  
 C/Species: Homo sapiens (man)  
 C/Date: 10-Sep-1999 #sequence revision 10-Sep-1999 #text change 08-Dec-2000  
 A/Accession: A33665; A32316; S18217; A43804; A24662; JH0707; S35535; S35536; 139413; A23  
 R:Merz, A.; Tischer, E.; Graves, D.; Tunolo, A.; Muller, J.; Gospodarowicz, D.; Abrahams  
 Biochem. Biophys. Res. Commun. 164, 1121-1129, 1989  
 A/Title: Structural analysis of the gene for human acidic fibroblast growth factor.  
 A/Reference number: A33665; MUID:90073637; PMID:2590193  
 A/Accession: A33665  
 A/Molecule type: DNA  
 A/Residues: 1-155 <MER>  
 A/Cross-references: GB:M30491  
 R:Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M.  
 Mol. Cell. Biol. 9, 2387-2395, 1989  
 A/Title: Cloning of the gene coding for human class 1 heparin-binding growth factor and  
 A/Reference number: A32316; MUID:89343957; PMID:2474753  
 A/Accession: A32316  
 A/Molecule type: DNA  
 A/Residues: 1-155 <MAN>  
 A/Cross-references: GB:M23087; NID:G183875; PIDN:AAA52638.1; PID:G386768  
 R:Wang, W.P.; Quick, D.; Balczak, S.P.; Needleman, S.W.; Chiu, I.M.  
 Oncogene 6, 1521-1529, 1991  
 A/Title: Cloning and sequence analysis of the human acidic fibroblast growth factor gene  
 A/Reference number: S18217; MUID:92019819; PMID:1717925  
 A/Accession: S18217  
 A/Molecule type: DNA  
 A/Residues: 1-155 <MA2>  
 A/Cross-references: EMBL:M23086  
 R:Chiu, I.M.; Wang, W.P.; Lehtoma, K.  
 Oncogene 5, 755-762, 1990  
 A/Title: Alternative splicing generates two forms of mRNA coding for human heparin-bind  
 A/Reference number: A43804; MUID:90265618; PMID:1693186  
 A/Accession: A43804  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <CHI>  
 A/Cross-references: EMBL:X51943; NID:G32435; PIDN:CAA36206.1; PID:G32436

R:Jaye, M.; Hawk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.  
 Science 233, 541-545, 1986  
 A/Title: Human endothelial cell growth factor: cloning, nucleotide sequence, and chromo.  
 A/Reference number: A24662; MUID:86261805; PMID:3523756  
 A/Accession: A24662  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <JUY>  
 A/Cross-references: GB:M13361; NID:G181941; PIDN:AAA79245.1; PID:G181942  
 R:Yu, Y.L.; Kna, H.; Golden, J.A.; Mischel, A.A.; Goertl, E.J.; Turck, C.W.  
 J. Exp. Med. 175, 1073-1080, 1992  
 A/Title: An acidic fibroblast growth factor protein generated by alternate splicing act.  
 A/Reference number: JH0707; MUID:92202857; PMID:1372643  
 A/Accession: JH0707  
 A/Molecule type: mRNA  
 A/Residues: 1-155 <YUY>  
 A/Cross-references: GB:X65778; NID:G396163; PIDN:CAA46661.1; PID:G396164  
 R:Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu  
 Nucleic Acids Res. 21, 489-495, 1993  
 A/Title: Cloning of two novel forms of human acidic fibroblast growth factor (afgf) mRN  
 A/Reference number: S35535; MUID:93181239; PMID:7680120  
 A/Accession: S35535  
 A/Molecule type: mRNA  
 A/Status: translation not shown  
 A/Accession: S35536  
 A/Molecule type: mRNA  
 A/Residues: 1-58 <PAY>  
 A/Cross-references: GB:L01485  
 A/Accession: L01485  
 A/Molecule type: protein  
 A/Status: translation not shown  
 A/Accession: L01487  
 A/Residues: 1-58 <PA2>  
 A/Cross-references: GB:L01487  
 R:Crumley, G.; Dionne, C.A.; Jaye, M.  
 Biochem. Biophys. Res. Commun. 171, 7-13, 1990  
 A/Title: The gene for human acidic fibroblast growth factor encodes two upstream exons  
 A/Reference number: 139412; MUID:90365758; PMID:2353407  
 A/Accession: 139413  
 A/Molecule type: mRNA  
 A/Status: translation not shown  
 A/Residues: 1-40 <RES>  
 A/Cross-references: GB:M60515; NID:G178226; PIDN:AAA51672.1; PID:G553170; GB:M60516; NI  
 R:Harper, J.W.; Strydom, D.J.; Lobb, R.R.  
 Biochemistry 25, 4097-4103, 1986  
 A/Reference number: A23553; MUID:86296647; PMID:2427112  
 A/Accession: A23553  
 A/Molecule type: protein  
 A/Residues: 16-155 <HR>  
 R:Gimenez-Galligo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
 Biochem. Biophys. Res. Commun. 138, 611-617, 1986  
 A/Title: The complete amino acid sequence of human brain-derived acidic fibroblast grow  
 A/Reference number: A24820; MUID:86295741; PMID:3527167  
 A/Accession: A24820  
 A/Molecule type: protein  
 A/Residues: 16-155 <GIM>  
 R:Gimenez-Galligo, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.  
 Biochem. Biophys. Res. Commun. 135, 541-548, 1986  
 A/Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal  
 A/Reference number: A30122; MUID:86186784; PMID:3364255  
 A/Accession: A24243  
 A/Molecule type: protein  
 A/Residues: 16-47 <G12>  
 A/Experimental source: brain  
 R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.  
 FEBS Lett. 204, 203-207, 1986  
 A/Title: Partial molecular characterization of endothelial cell mitogens from human bra  
 A/Reference number: A91364; MUID:86275260; PMID:3732516  
 A/Accession: A24301  
 A/Molecule type: protein  
 A/Residues: 16-30 'X', 32-49 <GAU>  
 R:Gautschi-Sova, P.; Muller, T.; Bohlen, P.  
 Biochem. Biophys. Res. Commun. 140, 874-880, 1986  
 A/Title: Amino acid sequence of human acidic fibroblast growth factor.  
 A/Reference number: A26386; MUID:87048871; PMID:3778488  
 A/Accession: A26386  
 A/Molecule type: protein

A:Residues: 16-155 <GA2>  
 A:Experimental source: brain  
 R.Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, M.W.;  
 Biochemistry 33, 7193-7202, 1994  
 C:Accession: D37360; J05231  
 C:Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).  
 A:Reference number: A53639; MUID:94271773; PMID:7516183  
 A:Accession: A53639  
 A:Molecule type: protein  
 A:Residues: 16-30, 'X', 32-38, 73-75, 'X', 77-97, 'X', 99-101, 128-131, 'X', 133-140, 'X', 142-152  
 C:Genetics:  
 A:Gene: GDB:FGF1; FGFA  
 A:Cross-references: GDB:119909; OMIM:131220  
 A:Map position: 5q31.3-5q33.2  
 A:Introns: 57/1, 91/3  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: alternative splicing; growth factor; heparin binding  
 F:16-155/Product: fibroblast growth factor 1 #status experimental <MAT>  
 F:129/Binding site: carbohydrate (Asn) (covalent) #status absent

Query Match 49.0%; Score 409.5; DB 1; Length 155;  
 Best Local Similarity 54.1%; Pred. No. 3, 8e-33;

Matches 85; Conservative 16; Mismatches 51; Indels 5; Gaps 2;

QY 1 MAAGSTTTLPALPEDGSGAFPFGHFKDPKRLCYKNGGFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAGEITTFPALTEKRN--LPPGNVKKPKLLYCSNGHFLRLPDGTVDGTRDSDOI 57  
 QY 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRY 120  
 DB 58 QLOLSAESGEVYIKGTETGOYLAMDTGILYSGQTPNEECFLERLENHNTYTSK 117  
 QY 121 T--SWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 118 AEKNWFVGLKKNKSGCRGPRTHYGOKAILFLPLPVSS 154

## RESULT 14

S04147  
 acidic fibroblast growth factor 1 - rat  
 N:Alternate names: heparin-binding growth factor 1  
 C:Species: Rattus norvegicus (Norway rat)  
 C:Date: 28-Feb-1990 #sequence, revision 28-Feb-1990 #text\_change 16-Jul-1999  
 C:Accession: S04147  
 R:Goodrich, S.P.; Yan, G.C.; Bahrenburg, K.; Mansson, P.E.  
 Nucleic Acids Res. 17, 2867, 1989  
 A:Title: The nucleotide sequence of rat heparin binding growth factor 1 (HBGF-1).  
 A:Reference number: S04147; MUID:89240051; PMID:2470029  
 A:Accession: S04147  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <GCO>  
 A:Cross-references: EMBL:X14232; NID:956351; PIDN:CAA32448.1; PID:G56352  
 C:Superfamily: fibroblast growth factor  
 C:Keywords: growth factor; heparin binding

Query Match 49.0%; Score 404.5; DB 2; Length 155;  
 Best Local Similarity 53.5%; Pred. No. 1, 2e-32;  
 Matches 84; Conservative 17; Mismatches 51; Indels 5; Gaps 2;

QY 1 MAAGSTTTLPALPEDGSGAFPFGHFKDPKRLCYKNGGFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAGEITTFPALTEKRN--LPPGNVKKPKLLYCSNGHFLRLPDGTVDGTRDSDOI 57  
 QY 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRY 120  
 DB 58 QLOLSAESGEVYIKGTETGOYLAMDTGILYSGQTPNEECFLERLENHNTYTSK 117  
 QY 121 T--SWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 118 AEKNWFVGLKKNKSGCRGPRTHYGOKAILFLPLPVSS 154

RESULT 15  
 D37360

acidic fibroblast growth factor - mouse  
 N:Alternate names: aFGF; FGF-1  
 C:Species: Mus musculus (house mouse)  
 C:Date: 17-Apr-1993 #sequence, revision 17-Apr-1993 #text\_change 16-Jul-1999  
 C:Accession: D37360; J05231  
 R:Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin, G.R.  
 Dev. Biol. 138, 454-463, 1990  
 A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization  
 A:Reference number: A37360; MUID:90201563; PMID:2318343  
 A:Accession: D37360  
 A:Status: preliminary  
 A:Molecule type: mRNA  
 A:Residues: 1-155 <HEB>  
 A:Cross-references: GB:M30641; NID:9193284; PIDN:AAA37618.1; PID:G309236  
 R:Madadi, F.; Hackshaw, K.V.; Chiu, I.M.  
 Gene 179, 231-236, 1996  
 A:Title: Cloning and characterization of the mouse Fgf-1 gene.  
 A:Reference number: J05231; MUID:97128312; PMID:8972905  
 A:Accession: J05231  
 A:Status: preliminary  
 A:Molecule type: DNA  
 A:Residues: 1-155 <MAD>  
 A:Cross-references: GB:U36456  
 C:Comment: This protein is an inducer of neovascularization in angiogenic disease includ:

A:Gene: Fgf-1  
 A:Introns: 57/1, 91/3  
 C:Superfamily: fibroblast growth factor

Query Match 49.0%; Score 404.5; DB 2; Length 155;  
 Best Local Similarity 53.5%; Pred. No. 1, 2e-32;

Matches 84; Conservative 17; Mismatches 51; Indels 5; Gaps 2;

QY 1 MAAGSTTTLPALPEDGSGAFPFGHFKDPKRLCYKNGGFLRIHPDGRVDGVRKSDPHI 60  
 DB 1 MAGEITTFPALTEKRN--LPPGNVKKPKLLYCSNGHFLRLPDGTVDGTRDSDOI 57  
 QY 61 KLOLAERGVVSIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRY 120  
 DB 58 QLOLSAESGEVYIKGTETGOYLAMDTGILYSGQTPNEECFLERLENHNTYTSK 117  
 QY 121 T--SWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155  
 DB 118 AEKNWFVGLKKNKSGCRGPRTHYGOKAILFLPLPVSS 154

Search completed: December 16, 2002, 17:56:10  
 Job time : 15.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:54:01 ; Search time 8.5 Seconds

(without alignments)  
756,333 Million cell updates/sec

Title: US-09-886-856-8

Perfect score: 826  
Sequence: 1 MAAAGTTPALPEDGSGA.....GSKTGPCKAILFLPMSAKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database: SwissProt\_40.\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	826	100.0	155	FGF2_HUMAN	P09038 homo sapien
2	817	98.9	155	FGF2_BOVIN	P03966 bos taurus
3	811	98.2	155	FGF2_SHEEP	P20003 ovis aries
4	798.5	96.7	154	FGF2_RAT	P13109 rattus norv
5	783.5	94.9	154	FGF2_MOUSE	P15655 mus musculu
6	760.5	92.1	156	FGF2_MONDO	P48798 monodelphis
7	759	91.9	158	FGF2_CHICK	P48800 gallus gall
8	738	89.3	137	FGF2_RABIT	P48799 oryctolagus
9	687	83.2	155	FGF2_XENLA	P12226 xenopus lae
10	418.5	50.7	155	FGF1_MESAU	P14004 mesocricetu
11	410.5	49.7	155	FGF1_CHICK	P19596 gallus gall
12	409.5	49.6	155	FGF1_HUMAN	P05230 homo sapien
13	404.5	49.0	155	FGF1_MOUSE	P10935 mus musculu
14	403.5	48.8	152	FGF1_PIG	P20002 sus scrofa
15	393.5	47.6	155	FGF1_BOVIN	P03968 bos taurus
16	265	32.1	194	FGF4_CHICK	P48804 gallus gall
17	255.5	30.9	206	FGF4_HUMAN	P08620 homo sapien
18	253	30.6	256	FGF3_BRAE	P48802 brachydantio
19	251	30.4	220	FGF3_CHICK	P48801 gallus gall
20	250	30.3	208	FGF6_MOUSE	P21658 mus musculu
21	249	30.1	208	FGF6_HUMAN	P10767 homo sapien
22	248.5	30.1	206	FGF4_BOVIN	P48803 bos taurus
23	242.5	29.4	264	FGF5_MOUSE	P15656 mus musculu
24	242.5	29.4	266	FGF5_RAT	P48807 rattus norv
25	241.5	29.2	202	FGF4_MOUSE	P11403 mus musculu
26	239	28.9	187	FGFA_XENLA	P48805 xenopus lae
27	237.5	28.8	237	FGF3_XENLA	P33386 xenopus lae
28	237	28.7	245	FGF3_MOUSE	P05524 mus musculu
29	236	28.6	239	FGF3_HUMAN	P11487 homo sapien
30	234.5	28.4	192	FGFB_XENLA	P48806 xenopus lae
31	234	28.3	268	FGFS_HUMAN	P12034 homo sapien
32	217	26.3	208	FGF9_HUMAN	P13171 homo sapien
33	217	26.3	208	FGF9_MOUSE	P54130 mus musculu

34	217	26.3	208	1	FGF9_RAT	P36364 rattus norv
35	213	25.8	209	1	FGF9_XENLA	O91875 xenopus lae
36	210.5	25.5	194	1	FGF7_CANPA	P79150 canis famli
37	210	25.4	211	1	FGF7_HUMAN	O9np95 homo sapien
38	209.5	25.4	194	1	FGF7_MOUSE	P36363 mus musculu
39	207.5	25.1	194	1	FGF7_HUMAN	P21781 homo sapien
40	207.5	25.1	194	1	FGF7_SHEEP	P48808 ovis aries
41	206.5	25.0	207	1	FGFG_RAT	O54769 rattus norv
42	205.5	24.9	207	1	FGFG_HUMAN	O43320 homo sapien
43	204.5	24.8	194	1	FGF7_PIG	O9n198 sus scrofa
44	203	24.6	208	1	FGFA_HUMAN	O15520 homo sapien
45	203	24.6	215	1	FGFA_RAT	P70492 rattus norv

## ALIGNMENTS

RESULT 1  
FGF2\_HUMAN  
ID FGF2\_HUMAN STANDARD; PRT; 155 AA.  
AC P09038;  
DT 01-NOV-1988 (Rel. 09, Created)  
DT 01-NOV-1988 (Rel. 09, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Proscatrpin).  
GN FGF2 OR FGF8.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP MEDLINE=87217066; PubMed=3780670;  
RX MEDLINE=87053817; PubMed=3780670;  
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,  
RA Gospodarowicz D., Fiddes J.C.;  
RT "Human basic fibroblast growth factor: nucleotide sequence and genomic organization.";  
RT EMBO J. 5:2523-2528(1986).  
RN [2]  
RP MEDLINE=87217066; PubMed=3780670;  
RX MEDLINE=87217066; PubMed=3780670;  
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";  
RT Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
RN [3]  
RP MEDLINE=87217066; PubMed=3780670;  
RX MEDLINE=87217066; PubMed=3780670;  
RA Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M.,  
RA Rifkin D.B.;  
RT "A form of human basic fibroblast growth factor with an extended amino terminus.";  
RT Biochem. Biophys. Res. Commun. 144:543-550(1987).  
RN [4]  
RP MEDLINE=87217066; PubMed=2435575;  
RX MEDLINE=87217066; PubMed=2435575;  
RA Kurokawa T., Saeada R., Iwane M., Igarashi K.;  
RT "Cloning and expression of cDNA encoding human basic fibroblast growth factor.";  
RT FEBS Lett. 213:189-194(1987).  
RN [5]  
RP MEDLINE=89184522; PubMed=2538817;  
RX MEDLINE=89184522; PubMed=2538817;  
RA Prate H., Kaghad M., Prate A.C., Klagbrun M., Lelias J.M.,  
RA Lauzun P., Chalon P., Tauber J.P., Amelric F., Smith J.A.,  
RA Caput D.;  
RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";  
RT Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RN [6]  
RP MEDLINE=86275260; PubMed=3732516;  
RX MEDLINE=86275260; PubMed=3732516;

RA Gautschi P., Frater-Schroeder M., Boehlen P.;  
 RT "Partial molecular characterization of endothelial cell mitogens from  
 RT human brain: acidic and basic fibroblast growth factors.";   
 RL FEBS Lett. 204:203-207(1986).  
 [7]  
 RN SEQUENCE OF 10-39.  
 RP MEDLINE=86186784; PubMed=3964259;  
 RA Gimenez-Galligo G., Conn G., Hatcher V.B., Thomas K.A.;  
 RT "Human brain-derived acidic and basic fibroblast growth factors:  
 RT amino terminal sequences and specific mitogenic activities.";   
 RL Biochem. Biophys. Res. Commun. 135:541-548(1986).  
 [8]  
 RN SEQUENCE OF 2-22.  
 RP MEDLINE=87156686; PubMed=2435284;  
 RA Story M.T., Esch F., Shimazaki S., Sasse J., Jacobs S.C., Lawson R.K.;  
 RT "Amino-terminal sequence of a large form of basic fibroblast growth  
 RT factor isolated from human benign prostatic hyperplastic tissue.";   
 RL Biochem. Biophys. Res. Commun. 142:702-709(1987).  
 [9]  
 RN X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).  
 RP MEDLINE=91195367; PubMed=1707542;  
 RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;  
 RT "Three-dimensional structure of human basic fibroblast growth  
 RT factor.";   
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).  
 [10]  
 RN X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RP MEDLINE=94004464; PubMed=7691311;  
 RA Eriksson A.E., Cousens L.S., Matthews B.W.;  
 RT "Refinement of the structure of human basic fibroblast growth factor  
 RT at 1.6-A resolution and analysis of presumed heparin binding sites by  
 RT separate substitution.";   
 RL Protein Sci. 2:1274-1284(1993).  
 [11]  
 RN X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).  
 RP MEDLINE=91195368; PubMed=1849658;  
 RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;  
 RT "Three-dimensional structure of human basic fibroblast growth factor,  
 RT a structural homolog of interleukin 1 beta.";   
 RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).  
 [12]  
 RN X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).  
 RP MEDLINE=92121151; PubMed=1769963;  
 RA Ago H., Kitagawa Y., Fujishima A., Matsura Y., Katsube Y.;  
 RT "Crystal structure of basic fibroblast growth factor at 1.6-A  
 RT resolution.";   
 RL J. Biochem. 110:360-363(1991).  
 [13]  
 RN X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).  
 RP MEDLINE=91095983; PubMed=1702556;  
 RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
 RT "Three-dimensional structures of acidic and basic fibroblast growth  
 RT factors.";   
 RL Science 251:90-93(1991).  
 [14]  
 RN STRUCTURE BY NMR.  
 RP MEDLINE=97040521; PubMed=8885834;  
 RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;  
 RT "High-resolution solution structure of basic fibroblast growth factor  
 RT determined by multidimensional heteronuclear magnetic resonance  
 RT spectroscopy.";   
 RL Biochemistry 35:13552-13561(1996).  
 [15]  
 RN FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 RN IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 RN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 RN CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES  
 CC AFGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration

CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on its  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (See <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC -----  
 DR EMBL; M17599; AA52534.1; ALT\_INIT.  
 DR EMBL; X04431; CA28027.1; -  
 DR EMBL; X04432; CA28028.1; -  
 DR EMBL; X04433; CA28029.1; -  
 DR EMBL; M27968; AA52448.1; -  
 DR EMBL; J04513; AA52533.1; ALT\_INIT.  
 DR PIR; A25824; A25824.  
 DR PIR; A26642; A26642.  
 DR PIR; B24243; B24243.  
 DR PIR; B24301; B24301.  
 DR PIR; B32879; B32879.  
 DR PIR; S00297; S00297.  
 DR PDB; 2FGF; 15-APR-92.  
 DR PDB; 4FGF; 15-JUL-93.  
 DR PDB; 1FGA; 15-JUL-93.  
 DR PDB; 1BFB; 03-APR-96.  
 DR PDB; 1BFC; 03-APR-96.  
 DR PDB; 1BFE; 16-JUN-97.  
 DR PDB; 1BFG; 31-JAN-94.  
 DR PDB; 2BFG; 30-APR-94.  
 DR PDB; 1BLA; 08-NOV-96.  
 DR PDB; 1BLD; 08-NOV-96.  
 DR Genew; HGNC:3676; FGF2.  
 DR MIM; 134920; -  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF\_1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 KW 3D-structure.  
 FT PROPEP 1 9  
 FT CHAIN 10 155  
 FT SITE 46 48  
 FT SITE 88 90  
 FT BINDING 27 31  
 FT BINDING 116 119  
 FT STRAND 30 34  
 FT TURN 35 38  
 FT STRAND 39 43  
 FT TURN 45 46  
 FT STRAND 49 52  
 FT TURN 55 56  
 FT STRAND 58 60  
 FT HELIX 62 66  
 FT TURN 69 71  
 FT STRAND 71 76  
 FT TURN 77 80  
 FT STRAND 81 85  
 FT TURN 87 88  
 FT STRAND 91 94  
 FT HELIX 99 101  
 FT STRAND 103 107  
 FT TURN 109 110  
 FT STRAND 113 117  
 FT TURN 121 122  
 FT STRAND 124 124  
 FT STRAND 127 127  
 FT TURN 129 130  
 FT STRAND 132 133  
 FT HELIX 136 138  
 FT TURN 141 142  
 FT HELIX 144 146  
 FT STRAND 148 152  
 HEPARIN-BINDING GROWTH FACTOR 2.  
 CELL ATTACHMENT SITE (POTENTIAL).  
 CELL ATTACHMENT SITE (POTENTIAL).  
 HEPARIN (POTENTIAL).  
 HEPARIN (POTENTIAL).

Query Match 100.0%; Score 826; DB 1; Length 155;  
 Best Local Similarity 100.0%; Pred. No. 1.2e-79;  
 Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITTLPLPDGSGAAPPQHPKRLYCKNGGFFLRHPDRVQDVRKSPHI 60  
 DB 1 MAAGSITTLPLPDGSGAAPPQHPKRLYCKNGGFFLRHPDRVQDVRKSPHI 60

QY 61 KLOLAERGVSISIKVCANRYLAKEDGRLLASKCVTDECFFPERLESNNYNTYRSRY 120  
 DB 61 KLOLAERGVSISIKVCANRYLAKEDGRLLASKCVTDECFFPERLESNNYNTYRSRY 120

QY 121 TSMYVALKRTGQYKLGSKTGPQYAIIFLPMASAKS 155  
 DB 121 TSMYVALKRTGQYKLGSKTGPQYAIIFLPMASAKS 155

RESULT 2  
 FGF2\_BOVIN STANDARD; PRT; 155 AA.

AC P03969;  
 DT 23-OCT-1986 (Rel. 02, Last sequence update)  
 DT 23-OCT-1986 (Rel. 02, Last sequence update)  
 DT 15-JUN-2002 (Rel. 41, Last annotation update)  
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) [Contains: Kidney-derived growth factor].  
 GN FGF2 OR FGF-2.  
 OS Bos taurus (Bovine); Craniata; Vertebrata; Euteleostomi;  
 OC Eukaryota; Metazoa; Chordata; Euteleostomi; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Bovinae; Bos.  
 OC NCBI\_TaxID=9913;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=86261806; PubMed=2425435;  
 RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,  
 RA Herlihy K.A., Gospodarowicz D., Fiddes J.C.;  
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor";  
 RL Science 233:545-548(1986).  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=87217066; PubMed=3472745;  
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;  
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells";  
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).  
 RN [3]  
 RP SEQUENCE OF 10-155.  
 RX MEDLINE=86016731; PubMed=3863109;  
 RA Esch F., Baird A., Ling N., Ueno N., Hall F., Denoroy L., Klepper R.,  
 RA Gospodarowicz D., Boehlen P., Guillemin R.;  
 RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF";  
 RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).  
 RN [4]  
 RP SEQUENCE OF 1-9.  
 RX MEDLINE=86295737; PubMed=3741423;  
 RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;  
 RT "Isolation of an amino terminal extended form of basic fibroblast growth factor";  
 RL Biochem. Biophys. Res. Commun. 138:580-588(1986).  
 RN [5]  
 RP SEQUENCE OF 25-41.  
 RX MEDLINE=86095426; PubMed=4081126;  
 RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;  
 RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor";

RL Regul. Pept. 12:201-213(1985).  
 RN [6]  
 RP SEQUENCE OF 21-40.  
 RC TISSUE=Kidney;  
 RX MEDLINE=87119165; PubMed=3809608;  
 RA Ueno N., Baird A., Esch F., Shimaseki S., Ling N., Guillemin R.;  
 RT "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor";  
 RL Regul. Pept. 16:135-145(1986).  
 RN [7]  
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RX MEDLINE=91095983; PubMed=1702556;  
 RA Zhu X.T., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
 RA Hsu B.T., Rees D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth factors";  
 RL Science 251:90-93(1991).  
 CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -!- SUBUNIT: MONOMER.  
 CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGP.  
 CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC THIS SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
 CC  
 CC EMBL: M13440; AAA30518.1; -;  
 DR PIR; A24663; GKB08.  
 DR PIR; A24819; A24819.  
 DR PIR; A32878; A32878.  
 DR PDB; 1BAS; 31-OCT-93.  
 DR InterPro; IPR002209; HB/F growthfact.  
 DR InterPro; IPR002348; ILL\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; ILLHBGF.  
 DR PRODOM; PD000831; HB/F growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;  
 KW 3D-structure.  
 FT PROPEP 1 9  
 FT CHAIN 10 155  
 FT CHAIN 25 155  
 FT SITE 46 48  
 FT SITE 88 90  
 FT BINDING 27 31  
 FT BINDING 116 119  
 FT STRAND 30 34  
 FT STRAND 35 38  
 FT STRAND 39 43  
 FT STRAND 45 46  
 FT STRAND 49 52  
 FT STRAND 55 56  
 FT STRAND 58 60  
 FT STRAND 62 68  
 FT STRAND 69 70  
 FT STRAND 71 76  
 FT TURN 77 80  
 FT TURN 81 85  
 FT TURN 87 88  
 FT STRAND 91 94  
 FT STRAND 99 101  
 FT HELIX 103 107  
 FT STRAND 109 110

```

FT STRAND 113 117
FT TURN 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 133 133
FT TURN 136 138
FT TURN 141 142
FT TURN 144 146
FT STRAND 148 151
SQ SEQUENCE 155 AA; 17250 MW; BECE70FA6107129 CRC64;

Query Match 98.9%; Score 817; DB 1; Length 155;
Best Local Similarity 98.7%; Pred. No. 1,1e-78;
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPPGHPKPKLYCKNGGFFLRIHPDGRVDGVREKSDPHI 60
DB 1 MAAGSITTLPALPEDGSGAPPPGHPKPKLYCKNGGFFLRIHPDGRVDGVREKSDPHI 60
QY 61 KLOLOAERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
DB 61 KLOLOAERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 3
FGF2_SHEEP STANDARD; PRT; 155 AA.
ID FGF2_SHEEP STANDARD; PRT; 155 AA.
AC P20003;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (HBGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Ovis aries (sheep).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OC NCBI_TaxID=9940;
RN [1]
RN SEQUENCE FROM N.A.
RA Sution R., Ward W.G., Raphael K.A., Cam G.R.;
RA Submitted (SEP-1994) to the EMBL/Genbank/DBJ databases.
RX MEDLINE=88055577; PubMed=3678486;
RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
RA Rubira M.R., Burgess A.W.;
RA "Primary structure of ovine pituitary basic fibroblast growth
RT factor.";
RT FEBS Lett. 224:128-132(1987).
RL
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC ARGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----

```

```

DR EMBL; L36136; AAA31519.1; -.
DR PIR; S00185; S00185.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HB/F growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F growthfact; 1.
DR SMART; SM00442; FGF_1.
DR PROSITE; PS00247; HBGF_FGF_1.
KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 45 48 HEPARIN-BINDING GROWTH FACTOR 2.
FT SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 27 31 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA61060D CRC64;

Query Match 98.2%; Score 811; DB 1; Length 155;
Best Local Similarity 98.1%; Pred. No. 4,7e-78;
Matches 152; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAPPPGHPKPKLYCKNGGFFLRIHPDGRVDGVREKSDPHI 60
DB 1 MAAGSITTLPALPEDGSGAPPPGHPKPKLYCKNGGFFLRIHPDGRVDGVREKSDPHI 60
QY 61 KLOLOAERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
DB 61 KLOLOAERGVVSIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120
QY 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155
DB 121 TSMYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155

RESULT 4
FGF2_RAT STANDARD; PRT; 154 AA.
ID FGF2_RAT STANDARD; PRT; 154 AA.
AC P11109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (HBGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Rattus.
OC NCBI_TaxID=10116;
RN [1]
RN SEQUENCE FROM N.A.
RA STRAIN=Sprague-Dawley; TISSUE=Ovary;
RX MEDLINE=89061721; PubMed=3196337;
RA Shimazaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RA "Complementary DNA cloning and sequencing of rat ovarian basic
RT fibroblast growth factor and tissue distribution study of its mRNA.";
RT Biochem. Biophys. Res. Commun. 157:256-263(1988).
RL
RN [2]
RN SEQUENCE FROM N.A.
RA TISSUE=Brain;
RX MEDLINE=88262516; PubMed=3387229;
RA Kurokawa T., Seno M., Igarashi K.;
RA "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
RN Nucleic Acids Res. 16:5201-5201(1988).
RN [3]
RN SEQUENCE OF 1-28 FROM N.A.
RA STRAIN=Sprague-Dawley; TISSUE=Testis;
RX MEDLINE=97200905; PubMed=9046734;
RA Pauzourth K.B.S., Jin Y., Cattini P.A.;
RA "Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";

```

```

RL J. Neurochem. 68:988-908(1997).
RN [4]
RN SEQUENCE OF 35-154 FROM N.A.
RC STRAIN-Sprague-Dawley, TISSUE=Brain;
RX MEDLINE=92329546; PubMed=1378302;
RA El-Husseini A.B.-D., Paterson J.A., Myal Y., Shiu R.P.C.;
RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF)
RT mRNA containing a unique 3' untranslated region.";
RT Biochim. Biophys. Acta 1131:314-316(1992).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M22427; AAA4210.1; -
DR EMBL; X07285; CAA30265.1; -
DR EMBL; U78079; AAC53225.1; -
DR EMBL; X61697; CAA43863.1; -
DR PIR; S00876; S00876.
DR PIR; A31674; A31674.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
DR PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17139 MW; 1A0F14FP423D8403 CRC64;

Query Match 96.7%; Score 798.5; DB 1; Length 154;
Best Local Similarity 96.8%; Pred. No. 9.5e-77;
Matches 150; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

QY 1 MAAGSITTLALPEDDGGGAFPPGHPKDPKRLCYCKNGFFLRHPDGRVGVREKSDPHI 60
DB 1 MAAGSITSLRPLPEDGG-GAFPPGHFKDPKRLCYCKNGFFLRHPDGRVGVREKSDPHV 59

QY 61 KLOQAEERGVSVIKGVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRKY 120
DB KLOQAEERGVSVIKGVCANRYLAMKEDGRLLASKCVTECFPERLESNNYNTYRSRKY 119

QY 121 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155
DB 120 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 154

RESULT 5
FGF2_MOUSE STANDARD; PRT; 154 AA.
AC P15655;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast

```

```

DE growth factor) (bFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=9201563; PubMed=2318343;
RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J, A/J, and NOD/LtJ; TISSUE=Spleen;
RA Ma R.Z., Teuscher C.;
RL Submitted (MAY-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M30644; AAA37621.1; -
DR EMBL; AF065903; AAC17503.1; -
DR EMBL; AF065904; AAC17504.1; -
DR EMBL; AF065905; AAC17505.1; -
DR PIR; C37360; C37360.
DR HSSP; P09038; 1BFF.
DR MGD; MGI:95516; Fgf2.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
DR PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match 94.9%; Score 783.5; DB 1; Length 154;
Best Local Similarity 94.8%; Pred. No. 3.6e-75;
Matches 147; Conservative 5; Mismatches 2; Indels 1; Gaps 1;

QY 1 MAAGSITTLALPEDDGGGAFPPGHPKDPKRLCYCKNGFFLRHPDGRVGVREKSDPHI 60
DB 1 MAAGSITSLRPLPEDDGA-AFPFGHPKDPKRLCYCKNGFFLRHPDGRVGVREKSDPHV 59

QY 61 KLOQAEERGVSVIKGVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRKY 120
DB KLOQAEERGVSVIKGVCANRYLAMKEDGRLLASKCVTECFPERLESNNYNTYRSRKY 119

QY 121 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 155
DB 120 TSWVALKRTGOYKLGSKTGPQKAILFLPMSAKS 154

```



## RESULT 6

FGF2\_MONDO STANDARD; PRT; 156 AA.

AC P46798;  
DT 01-FEB-1996 (Rel. 33, Created)  
DT 01-FEB-1996 (Rel. 33, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Procatropin).  
GN FGF2.  
OS Monodelphis domestica (Short-tailed grey opossum).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.  
OX NCBI\_TaxID=13616;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=94296558; PubMed=8024698;  
RA Kusewitt D.F., Sabourin C.L.K., Shephurn T.E., Ley R.D.;  
RT "Characterization of cDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica";  
RL DNA Cell Biol. 13:549-554(1994).  
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
CC -1- SUBUNIT: MONOMER.  
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----  
DR EMBL; Z15154; CAAT8854.1; ALT\_INIT.  
DR HSSP; P09038; 1BFF.  
DR InterPro; IPR002209; HB/F\_growthfact.  
DR InterPro; IPR002348; IL1\_HBGF.  
DR Pfam; PF00167; FGF; 1.  
DR PRINTS; PR00262; IL1HBGF.  
DR ProDom; PD000831; HB/F\_growthfact; 1.  
DR SMART; SM00442; FGF; 1.  
DR PROSITE; PS00247; HBGF\_FGF; 1.  
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
FT PROPEP 1  
FT CHAIN 156  
FT BINDING 28 HEPARIN-BINDING GROWTH FACTOR 2.  
FT BINDING 117 HEPARIN (POTENTIAL).  
FT BINDING 120 HEPARIN (POTENTIAL).  
SQ SEQUENCE 156 AA; 17303 MW; 7B655FC49BF1209 CRC64;

Query Match 92.1%; Score 760.5; DB 1; Length 156;  
Best Local Similarity 92.9%; Pred. No. 9.4e-73;  
Matches 145; Conservative 5; Mismatches 5; Indels 1; Gaps 1;

QY 1 MAAGITTLPALPED-GSGGAPFGHFKDKPKRLYCKNGGFFLRHPDGVREKSDPHK 59  
DB 1 MAAGITTLPALPDGGGAGFPFGHFKDKPKRLYCKNGGFFLRHPDGVREKSDPHK 60  
QY 60 IKLQAEERGVSVIKGVCANRYLANKEDGRLLASKCVTDECFERLESNNYTYRSRK 119  
DB 61 IKLQAEERGVSVIKGVCANRYLANKEDGRLLALKYVTECFERLESNNYTYRSRK 120  
QY 120 YTSWVALKRTGQYKLGSKTGPGOKAILFLPMSAKS 155  
DB 121 YSNWVALKRTGQYKLGSKTGPGOKAILFLPMSAKS 156

## RESULT 7

FGF2\_CHICK STANDARD; PRT; 158 AA.

AC P4680;  
DT 01-FEB-1996 (Rel. 33, Created)  
DT 01-FEB-1996 (Rel. 33, Last sequence update)  
DT 15-JUN-2002 (Rel. 41, Last annotation update)  
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).  
GN FGF2 OR FGF-2. (Chicken).  
OS Gallus gallus (Chicken).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.  
OX NCBI\_TaxID=9031;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=93246053; PubMed=7683281;  
RA Borja A.Z., Zeller R., Meljers C.;  
RT "Expression of alternatively spliced bFGF first coding exons and antisense mRNAs during chicken embryogenesis";  
RL Dev. Biol. 157:110-118(1993).  
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.  
CC -1- SUBUNIT: MONOMER.  
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).  
CC -----  
DR EMBL; M95707; AAA4617.1; -.  
DR HSSP; P09038; 1BFF.  
DR InterPro; IPR002209; HB/F\_growthfact.  
DR InterPro; IPR002348; IL1\_HBGF.  
DR Pfam; PF00167; FGF; 1.  
DR PRINTS; PR00262; IL1HBGF.  
DR ProDom; PD000831; HB/F\_growthfact; 1.  
DR SMART; SM00442; FGF; 1.  
DR PROSITE; PS00247; HBGF\_FGF; 1.  
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.  
FT PROPEP 1  
FT CHAIN 13  
FT BINDING 30 HEPARIN-BINDING GROWTH FACTOR 2.  
FT BINDING 34 HEPARIN (POTENTIAL).  
FT BINDING 119 HEPARIN (POTENTIAL).  
FT BINDING 122 HEPARIN (POTENTIAL).  
SQ SEQUENCE 158 AA; 17374 MW; 7B69B84C17F1816 CRC64;

Query Match 91.9%; Score 759; DB 1; Length 158;  
Best Local Similarity 92.2%; Pred. No. 1.4e-72;  
Matches 142; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 2 AAGSITTLPALPEDGSGAPFGHFKDKPKRLYCKNGGFFLRHPDGVREKSDPHK 61  
DB 5 AAGSITTLPALPDGGGAGFPFGHFKDKPKRLYCKNGGFFLRHPDGVREKSDPHK 64  
QY 62 LQLOAEERGVSVIKGVCANRYLANKEDGRLLASKCVTDECFERLESNNYTYRSRKT 121  
DB 65 LQLOAEERGVSVIKGVANRYLANKEDGRLLALCAATECFERLESNNYTYRSRKS 124  
QY 122 SMYVALKRTGQYKLGSKTGPGOKAILFLPMSAKS 155  
DB 125 DMVVALKRTGQYKLGSKTGPGOKAILFLPMSAKS 158

RESULT 8  
FGF2\_RABBIT



```

ID  FGFG2_RABIT      STANDARD;      PRT;      137 AA.
AC  P48759;
DT  01-FEB-1996 (Rel. 33, Last Created)
DT  01-FEB-1996 (Rel. 33, Last sequence update)
DT  15-JUN-2002 (Rel. 41, Last annotation update)
DE  Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth
DE  factor) (BFGF) (Procatropin) (Fragment).
GN  RGF2.
OS  Oryctolagus cuniculus (Rabbit).
OC  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC  Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX  NCBI_TaxId=9986;
RN  [1]
RP  SEQUENCE FROM N.A.
RC  STRAIN=New Zealand white, TISSUE=Smooth muscle;
RX  MEDLINE=93343209; PubMed=8342599;
RA  Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Liu G.;
RT  "Elevated expression of basic fibroblast growth factor in an
RT  immortalized rabbit smooth muscle cell line.";
RL  Am. J. Pathol. 143:518-527(1993).
CC  -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC  IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC  VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC  CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC  -1- SUBUNIT: MONOMER.
CC  -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC  AFGF.
CC  -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC  -----
CC  This SWISS-PROT entry is copyright. It is produced through a collaboration
CC  between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC  the European Bioinformatics Institute. There are no restrictions on its
CC  use by non-profit institutions as long as its content is in no way
CC  modified and this statement is not removed. Usage by and for commercial
CC  entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC  or send an email to license@isb-sib.ch).
CC  -----
DR  EMBL; L12034; AAA31248.1; -.
DR  HSSP; P09038; 1BFF.
DR  InterPro; IPR002209; HB/F_growthfact.
DR  Pfam; PF00167; FGF_1; HB/F_growthfact. 1.
DR  PROSITE; PS00247; HBGF_FGF_1.
DR  SMART; SM00442; FGF_1.
DR  PROSITE; PS00247; HBGF_FGF_1.
DR  Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KM  BINDING 18 22 HEPARIN (POTENTIAL).
FT  BINDING 107 110 HEPARIN (POTENTIAL).
FT  NON_TER 137 137
SQ  SEQUENCE 137 AA; 15418 MW; 0D9E8A57B88E8C51 CRC64;

Query Match 89.3%; Score 738; DB 1; Length 137;
Best Local Similarity 99.3%; Pred. No. 1.8e-70;
Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY  10 PALPEDGGGAGPPGHFKDPKRLKCKNGGFFLRHPDGRVDGVRKSDPHIKLOLAER 69
DB  1 PALPEDGGGAGPPGHFKDPKRLKCKNGGFFLRHPDGRVDGVRKSDPHIKLOLAER 60
QY  70 GVIVSIVGVANRYLAKKEGRLLASCVTDECFERLSSNNNTYRSKRYSSWYALKR 129
DB  61 GVIVSIVGVANRYLAKKEGRLLASCVTDECFERLSSNNNTYRSKRYSSWYALKR 120
QY  130 TGOYKLGSKTGPQKAI 146
DB  121 TGOYKLGSKTGPQKAI 137

RESULT 9
ID  FGFG2_XENLA      STANDARD;      PRT;      155 AA.
AC  P12256;
DT  01-OCT-1989 (Rel. 12, Created)
DT  01-JAN-1990 (Rel. 13, Last sequence update)

```

```

DT  15-JUN-2002 (Rel. 41, Last annotation update)
DE  Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE  growth factor) (BFGF).
GN  RGF2 OR FGF-2.
OS  Xenopus laevis (African clawed frog).
OC  Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC  Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;
OC  Xenopodinae; Xenopus.
OX  NCBI_TaxId=8355;
RN  [1]
RP  SEQUENCE FROM N.A.
RX  MEDLINE=89058621; PubMed=3194757;
RA  Kimmelman D., Abraham J., Haaparanta T., Palsi T., Kirschner M.;
RT  "The presence of fibroblast growth factor in the frog egg: its role
RT  as a natural mesoderm inducer.";
RL  Science 242:1053-1056(1988).
RN  [2]
RP  SEQUENCE OF 95-155 FROM N.A.
RX  MEDLINE=88052890; PubMed=3479265;
RA  Kimmelman D., Kirschner M.;
RT  "Synergistic induction of mesoderm by FGF and TGF-beta and the
RT  identification of an mRNA coding for FGF in the early Xenopus
RT  embryo.";
RL  Cell 51:869-877(1987).
CC  -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC  -----
CC  This SWISS-PROT entry is copyright. It is produced through a collaboration
CC  between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC  the European Bioinformatics Institute. There are no restrictions on its
CC  use by non-profit institutions as long as its content is in no way
CC  modified and this statement is not removed. Usage by and for commercial
CC  entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC  or send an email to license@isb-sib.ch).
CC  -----
DR  EMBL; M18067; AAA49726.1; -.
DR  PIR; A29618; A29618.
DR  PIR; A40117; A40117.
DR  HSSP; P09038; 1BFF.
DR  InterPro; IPR002209; HB/F_growthfact.
DR  InterPro; IPR002348; IL1_HBGF.
DR  Pfam; PF00167; FGF_1.
DR  PRINTS; PR00262; IL1HBGF.
DR  PRODOM; PD000831; HB/F_growthfact. 1.
DR  SMART; SM00442; FGF_1; HBGF_FGF_1.
DR  PROSITE; PS00247; HBGF_FGF_1.
DR  Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KM  PROPEP 1 9 HEPARIN-BINDING GROWTH FACTOR 2.
FT  CHAIN 10 155
FT  BINDING 27 31 HEPARIN (POTENTIAL).
FT  BINDING 116 119 HEPARIN (POTENTIAL).
FT  CONFLICT 111 111 MISSING (IN REF. 2).
SQ  SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;

Query Match 83.2%; Score 687; DB 1; Length 155;
Best Local Similarity 83.9%; Pred. No. 4.8e-65;
Matches 130; Conservative 9; Mismatches 16; Indels 0; Gaps 0;

QY  1 MAAGSITLTPALPEDGGGAGPPGHFKDPKRLKCKNGGFFLRHPDGRVDGVRKSDPHI 60
DB  1 MAAGSITLTPESBDGGGNTPEFGSFKDPKRLKCKNGGFFLRHPDGRVDGVRKSDPHI 60
QY  61 KLOLAVERGVISIVGVANRYLAKKEGRLLASCVTDECFERLSSNNNTYRSKRY 120
DB  61 KLOLAVERGVISIVGVANRYLAKKEGRLLASCVTDECFERLSSNNNTYRSKRY 120
QY  121 TSWYVALKRTGOYKLGSKTGPQKAIILFLPMSAKS 155
DB  121 TSWYVALKRTGOYKLGSKTGPQKAIILFLPMSAKS 155

RESULT 10
ID  FGFL_MESAU      STANDARD;      PRT;      155 AA.

```

```

AC P34004;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
DE growth factor) (AFGF).
GN FGF1 OR FGF-1.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90270291; PubMed=1693366;
RA Hall J.A., Harris W.A., Malair M., Mansson P.E., Zhou H., Harris S.E.,
RT "Characterization of the hamster DDT-1 cell afGF/HBGF-I gene and cDNA
RT and its modulation by steroids."
RL J. Cell. Biochem. 43:17-26(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC PIR: A60721; A60721.
DR HSSP: P05230; 1RML.
DR InterPro: IPR002209; HB/F growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PFO0167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HB/F growthfact; 1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155
FT BINDING 24 28
FT BINDING 113 116
SQ SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;

Query Match 50.7%; Score 418.5; DB:1; Length 155;
Best Local Similarity 54.8%; Pred. No. 7.1e-37;
Matches 86; Conservative 16; Mismatches 50; Indels 5; Gaps 2;

OY 1 MAAGSITTLPLPEDGGGAPPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60
DB 1 MAEGITTFPSALTERFN--LPPGNKKPKLLYCSNGHFLRLIPDGVDRSDPHI 57
OY 61 KLOLAERGVVSIKVCANRYLAKEDGRLLASKCVTDECFEFLRLENNYNTYRSRY 120
DB 58 QLOLSAESAGEVYIKGTETGYLMDTDLGLYGSQTPNEECFLERLENNYNTYRSKH 117
OY 121 T--SWYVALKRTGYKLGSKTSPGQKALIFLPMASKS 155
DB 118 AEKNWFVGLKKNGSKGRPRTHYGOKAILFLPLPVSS 154

RESULT 11
FGF1 CHICK STANDARD; PRT; 155 AA.
AC P19596;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
DE growth factor) (AFGF) (Alpha-endothelial cell growth factor).
GN FGF1 OR FGF-1.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;

```

```

OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=91347925; PubMed=1715259;
RA Schumacher H., Risau W.,
RT "Differentiating rat and mature neurons express the acidic fibroblast
RT growth factor gene during chick neural development."
RL Development 111:1143-1154(1991).
RN [2]
RP SEQUENCE FROM N.A.
RA Martin G.R., Han J.K.;
RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE OF 22-48.
RX MEDLINE=88296438; PubMed=3402441;
RA Risau W., Gausecht-Sova P., Boehlen P.;
RT "Endothelial cell growth factors in embryonic and adult chick brain
RT are related to human acidic fibroblast growth factor."
RL EMBO J. 7:959-962(1988).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.ebi.ac.uk/announcements
CC or send an email to license@ebi.ac.uk).
CC -----
DR EMBL: S63263; AB19629.1; -
DR EMBL: U31863; AA80310.1; -
DR EMBL: S63261; AAD1942.1; -
DR PIR: S02639; S02639.
DR HSSP: P05230; 2AXM.
DR InterPro: IPR002209; HB/F growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PFO0167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HB/F growthfact; 1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155
FT BINDING 22 155
FT BINDING 24 28
FT BINDING 113 116
SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545EB24365 CRC64;

Query Match 49.7%; Score 410.5; DB:1; Length 155;
Best Local Similarity 54.9%; Pred. No. 4.9e-36;
Matches 84; Conservative 20; Mismatches 44; Indels 5; Gaps 2;

OY 1 MAAGSITTLPLPEDGGGAPPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVRKSDPHI 60
DB 1 MAEGITTFPSALTERFN--LPPGNKKPKLLYCSNGHFLRLIPDGVDRSDPHI 57
OY 61 KLOLAERGVVSIKVCANRYLAKEDGRLLASKCVTDECFEFLRLENNYNTYRSRY 120
DB 58 QLOLSAESAGEVYIKGTETGYLMDTDLGLYGSQTPNEECFLERLENNYNTYRSKH 117
OY 121 T--SWYVALKRTGYKLGSKTSPGQKALIFLPM 151
DB 118 ADKNWFVGLKKNGSKGRPRTHYGOKAILFLPL 150

```



```

CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: M13161; AAA79245.1; -
DR EMBL: X51943; CAA36206.1; -
DR EMBL: M30492; AAA52446.1; -
DR EMBL: M30490; AAA52446.1; JOINED.
DR EMBL: M30491; AAA52446.1; JOINED.
DR EMBL: M60515; AAA51672.1; -
DR EMBL: M60516; AAA51673.1; -
DR EMBL: M23087; AAA52638.1; -
DR EMBL: M23086; AAA52638.1; JOINED.
DR EMBL: S67291; AAB29057.2; -
DR EMBL: X65778; CAA46661.1; -
DR PIR: A23553; A23553.
DR PIR: A24243; A24243.
DR PIR: A24301; A24301.
DR PIR: A24662; A24662.
DR PIR: A24820; A24820.
DR PIR: A26386; A26386.
DR PIR: A33665; A33665.
DR PIR: S18217; S18217.
DR PDB: 2AFG; 15-OCT-95.
DR PDB: 1AXM; 22-APR-98.
DR PDB: 2AXM; 22-APR-98.
DR PDB: 1RML; 11-NOV-98.
DR Gene: HGNC:3665; FGF1.
DR MIM: 131220; -
DR InterPro: IPR002209; HB/F growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000631; HB/F growthfact; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
DR 3D-structure.
DR PROPEP 1 15
DR CHAIN 16 155
DR MOD_RES 2 2
DR BINDING 24 28
DR BINDING 113 116
DR SEQUENCE 155 AA; 17460 MW; F586E8BFB09F1580 CRC64;

```

```

Query Match 49.6%; Score 409.5; DB 1; Length 155;
Best Local Similarity 54.1%; Pred. No. 6; 3e-36;
Matches 85; Conservative 16; Mismatches 51; Indels 5; Gaps 2;

```

```

ID FGF1 MOUSE STANDARD; PRT; 155 AA.
AC P10935;
DT 01-JUL-1989 (Rel. 11, Created)
DT 01-JUL-1989 (Rel. 11, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
DE growth factor) (AFGF).
GN FGF1 OR FGF-1 OR FGFA.
OS Mus musculus (Mouse), and
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090, 10116;
RN [1]
RP SEQUENCE FROM N.A.
RC SPECIES=Rat;
RX MEDLINE=89240051; PubMed=2470029;
RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
RT "The nucleotide sequence of rat heparin binding growth factor 1
RT (HBGF-1)".
RL Nucleic Acids Res. 17:2867-2867 (1989).
RN [2]
RP SEQUENCE FROM N.A.
RC SPECIES=Mouse;
RX MEDLINE=90201563; PubMed=2318343;
RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis."
RL Dev. Biol. 138:454-463 (1990).
RN [3]
RP SEQUENCE FROM N.A.
RC SPECIES=Mouse;
RX MEDLINE=97128312; PubMed=8972905;
RA Madral F., Hackshaw K.V., Chiu I.M.;
RT "Cloning and characterization of the mouse Fgf-1 gene."
RL Gene 179:211-236 (1996).
RN [4]
RP SEQUENCE FROM N.A.
RC SPECIES=Mouse; STRAIN=BALB/c;
RX MEDLINE=97094746; PubMed=8939980;
RA Alam K.V., Frostholtm A., Hackshaw K.V., Evans J.E., Rotter A.,
RA Chiu I.M.;
RT "Characterization of the 1B promoter of fibroblast growth factor 1
RT and its expression in the adult and developing mouse brain."
RL J. Biol. Chem. 271:30263-30271 (1996).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -----
CC -1- SUBUNIT: MONOMER.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: X14232; CAA32448.1; -
DR EMBL: M30641; AAA37618.1; -
DR EMBL: U36459; AAC82969.1; -
DR EMBL: U36457; AAC82969.1; JOINED.
DR EMBL: U36458; AAC82969.1; JOINED.
DR EMBL: U67610; AAC82907.1; -
DR PIR: S04147; S04147.
DR PIR: D37360; D37360.
DR HSSP: P05230; 1RML.
DR MGD: MGI:95515; Fgf1.
DR InterPro: IPR002209; HB/F growthfact.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.

```

```

DR PRINTS; PRO0262; ILHBGF.
DR Prodom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155
FT BINDING 24 28
FT BINDING 113 116
FT BINDING 153 AA; 17418 MW; 8880E4PF0BA4161 CRC64;
SQ SEQUENCE

Query Match 49.0%; Score 404.5; DB 1; Length 155;
Best Local Similarity 53.5%; Pred. No. 2.1e-35;
Matches 84; Conservative 17; Mismatches 51; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGGGAPPPGHFKDPRKLYCKNGFFLRHPDGRVGVREKSDPHI 60
DB 1 MAEGITTFALTFRN--LPLGNKKPKPLLYCSNGHFLRLPDGVDRSDQHI 57
QY 61 KIQLOAEERGVSISGVCANRYLAMKEDRLASKCVTDECFEELSENNTYTSRKX 120
DB 58 QQLASASAGEVYIKETGTGYLAMDTGLVGSQTPNEECFLERLEBNHNTYTSKQ 117
QY 121 T--SWYALKRTGYKLGSKTGPQKAILFLPM 155
DB 118 AEKNMFVGLKNGSCKRGPRTHYGQKAILFLPM 154

RESULT 14
FGF1_PIG STANDARD; PRT; 152 AA.
AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Alpha-endothelial cell growth factor) (Fragment).
GN FGF1 OR FGF-1.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=92062117; PubMed=1719973;
RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (afgf) from porcine heart."
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RN [2]
RP SEQUENCE OF 22-41.
RX MEDLINE=89231704; PubMed=2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Lueche N., Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts."
RL Eur. J. Biochem. 181:67-73(1989).
RN [3]
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial

```

```

CC entities require a license agreement (See http://www.isb-sib.ch/announce/ or send an email to license@isb-sib.ch).
CC -----
DR EMBL; X60317; CAA42869.1; -.
DR PIR; S03954; S03954.
DR HSP; P05230; 2AXM.
DR InterPro; IPR002209; HB/F_growthfact.
DR Pfam; PF00167; FGF; 1.
DR Prodom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 >152
FT BINDING 22 >152
FT BINDING 113 116
FT CONFLICT 31 31
FT CONFLICT 39 39
FT NON TER 152 152
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 48.8%; Score 403.5; DB 1; Length 152;
Best Local Similarity 54.2%; Pred. No. 2.6e-35;
Matches 83; Conservative 17; Mismatches 46; Indels 5; Gaps 2;

QY 1 MAAGSITTLPALPEDGGGAPPPGHFKDPRKLYCKNGFFLRHPDGRVGVREKSDPHI 60
DB 1 MAEGITTFALTFRN--LPLGNKKPKPLLYCSNGHFLRLPDGVDRSDQHI 57
QY 61 KIQLOAEERGVSISGVCANRYLAMKEDRLASKCVTDECFEELSENNTYTSRKX 120
DB 58 QQLASASAGEVYIKETGTGYLAMDTGLVGSQTPNEECFLERLEBNHNTYTSKQ 117
QY 121 T--SWYALKRTGYKLGSKTGPQKAILFLPM 151
DB 118 AEKNMFVGLKNGSCKRGPRTHYGQKAILFLPM 150

RESULT 15
FGF1_BOVIN STANDARD; PRT; 155 AA.
AC P03568;
DT 23-OCT-1986 (Rel. 02, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 15-JUN-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (proestropin) (Endothelial cell growth factor) (beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF II).
GN FGF1 OR FGF-1 OR FGPA OR HBGF-1 OR ARGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Retina;
RX MEDLINE=89083506; PubMed=3205724;
RA Halley C., Courtois Y., Laurent M.;
RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=89078619; PubMed=2849564;
RA Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;
RT "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina."
RL FEBS Lett. 242:41-46(1988).
RN [3]
RP SEQUENCE OF 2-155.

```

RA MEDLINE=87016918; PubMed=5532107.  
 RA Burgess W.H., Mehlan T., Marshak D.R., Fraser B.A., Maciag T.;  
 RT "Structural evidence that endothelial cell growth factor beta is the  
 RT precursor of both endothelial cell growth factor alpha and acidic  
 RT fibroblast growth factor.";   
 RT Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).  
 RN [4]  
 RN RP SEQUENCE OF 2-155.  
 RX MEDLINE=87026586; PubMed=3768327;  
 RA Crabb J.W., Arms L.G., Cair S.A., Johnson C.M., Roberts G.D.,  
 RA Bordoli R.S., McKeehan W.L.;  
 RT "Complete primary structure of prostatoplin, a prostate epithelial  
 RT cell growth factor.";   
 RT Biochemistry 25:4988-4993(1986).  
 RN [5]  
 RN RP SEQUENCE OF 16-155.  
 RX MEDLINE=86070224; PubMed=4071057;  
 RA Glenez-Galligo G., Rodkey J., Bennett C., Rios-Candelore M.,  
 RA Disalvo J., Thomas K.;  
 RT "Brain-derived acidic fibroblast growth factor: complete amino acid  
 RT sequence and homologies.";   
 RT Science 230:1385-1388(1985).  
 RN [6]  
 RN RP SEQUENCE OF 16-44, AND COMPOSITION.  
 RX MEDLINE=86055750; PubMed=4065099;  
 RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;  
 RT "Acidic fibroblast growth factor (FGF) from bovine brain:  
 RT amino-terminal sequence and comparison with basic FGF.";   
 RT EMBO J. 4:1951-1956(1985).  
 RN [7]  
 RN RP SEQUENCE OF 16-56 FROM N.A.  
 RX MEDLINE=86261806; PubMed=2425435;  
 RA Abraham J.A., Mergia A., Whang J.L., Tunolo A., Friedman J.,  
 RA Hjerild K.A., Gospodarowicz D., Fiddes J.C.;  
 RT "Nucleotide sequence of a bovine clone encoding the angiogenic  
 RT protein, basic fibroblast growth factor.";   
 RT Science 233:545-548(1986).  
 RN [8]  
 RN RP SEQUENCE OF 16-45.  
 RX MEDLINE=89231704; PubMed=2714282;  
 RA Ounkler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,  
 RA Sharma H.S., Schaper W.;  
 RT "Isolation of heparin-binding growth factors from bovine, porcine and  
 RT canine hearts.";   
 RT Eur. J. Biochem. 181:67-73(1989).  
 RN [9]  
 RN RP SEQUENCE OF 1-18 FROM N.A.  
 RA Philippe J.M., Renaud F., Desset S., Laurent M.;  
 RT Submitted (JUL-1992) to the EMBL/Genbank/DBJ databases.  
 RN [10]  
 RN RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).  
 RX Zhu X., Komiyu H., Chirino A., Faham S., Fox G.M., Arakawa T.,  
 RA Hsu B.T., Rees D.C.;  
 RT "Three-dimensional structures of acidic and basic fibroblast growth  
 RT factors.";   
 RT Science 251:90-93(1991).  
 RN [11]  
 RN RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS  
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN  
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND  
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.  
 CC -1- SUBUNIT: MONOMER.  
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY  
 CC THAN DOES BPGF.  
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
 CC -----  
 CC This SWISS-PROT entry is copyright. It is produced through a collaboration  
 CC between the Swiss Institute of Bioinformatics and the EMBL outstation -  
 CC the European Bioinformatics Institute. There are no restrictions on ways  
 CC use by non-profit institutions as long as its content is in no way  
 CC modified and this statement is not removed. Usage by and for commercial  
 CC entities requires a license agreement (see <http://www.isb-sib.ch/announce/>  
 CC or send an email to [license@isb-sib.ch](mailto:license@isb-sib.ch)).

QY	61	KUOLAEKGVISITGVCAKRIYLAKEGGRLLASKCVCVDECFEPFRLESNNYNTYRSKY	120
QY	1	MAAGSITLLPALPEDGGGAFPPGHFKDPKRLYCKNGGFFLRHDDGRVGYREKSDPHI	60
DB	1	MAEGETTTTALTEKFN--LPLGNYKKPKLLYCSNGGYFLRIILPDGTYVDGTKRSDQHI	57
QY	61	KUOLAEKGVISITGVCAKRIYLAKEGGRLLASKCVCVDECFEPFRLESNNYNTYRSKY	120

Tue Dec 17 11:01:02 2002

us-09-886-856-8.rsp

Page 13

Db 58 QQLCABSIGEVYIKSTERGQFLAMDTDGLYGSTPNECLFLERLEENHYNTYISKCH 117

Qy 121 TS--WVVALKRTGQYKLGSKRTGPGQKAILFLPMASKS 155

Db 118 AEKHWFTVGLKXNGRSKLGPRTHFGQKAILFLPLPVSS 154

Search completed: December 16, 2002, 17:56:55  
Job time : 9.5 secs

GenCore version 5.1.3  
Copyright (c) 1993 - 2002 Compugen Ltd.

OM protein - protein search, using sw model

Run on: December 16, 2002, 17:54:31 ; Search time 26 Seconds

(without alignments)  
1228.358 Million cell updates/sec

Title: US-09-886-856-8

Perfect score: 826  
Sequence: 1 MAAGSITTLPALPDGSGA.....GSKTGPGOKALFLPMKAKS 155

Scoring table: BLOSUM62  
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%  
Listing first 45 summaries

Database :

SPTREMBL\_21.\*  
1: sp\_archaea:\*  
2: sp\_bacteria:\*  
3: sp\_fungi:\*  
4: sp\_human:\*  
5: sp\_invertebrate:\*  
6: sp\_mammal:\*  
7: sp\_mnc:\*  
8: sp\_organelle:\*  
9: sp\_phase:\*  
10: sp\_plant:\*  
11: sp\_rodent:\*  
12: sp\_virus:\*  
13: sp\_vertebrate:\*  
14: sp\_unclassified:\*  
15: sp\_virus:\*  
16: sp\_bacteriaph:\*  
17: sp\_archaeap:\*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

# SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	826	100.0	196	4	P78443
2	768	93.0	153	11	Q925A3
3	742	89.8	170	11	Q60487
4	704	85.2	155	13	Q90Y92
5	682	82.6	130	6	Q77767
6	623	75.4	155	13	Q80FR9
7	585	70.8	111	6	Q98DX1
8	567	66.6	125	13	Q98TDB
9	561	67.9	108	6	Q9N1S7
10	490	59.3	109	11	Q925A1
11	486	58.8	112	11	Q925A2
12	476	57.6	101	13	P79706
13	469.5	56.8	146	13	Q07659
14	457	55.3	87	6	Q8WMP4
15	341	41.3	76	6	Q9NOV2
16	328	39.7	114	4	Q16443

17	328	39.7	114	4	Q00527	Q00527 homo sapien
18	292	35.4	106	6	Q9N1S8	Q9N1S8 capreolus c
19	251	30.4	208	11	Q8R5L5	Q8R5L5 ratius norv
20	249	30.1	196	13	Q9YH31	Q9YH31 notophthalm
21	245	29.7	124	13	Q90XQ5	Q90XQ5 ambystoma m
22	239	28.9	245	11	Q8R5L9	Q8R5L9 ratius norv
23	236	28.6	195	11	Q8R5L6	Q8R5L6 ratius norv
24	229	27.7	206	13	Q9YGD8	Q9YGD8 oncorhynch
25	224	27.1	111	13	Q90XQ1	Q90XQ1 ambystoma m
26	217.5	26.3	201	13	Q80Q59	Q80Q59 ambystoma m
27	216	26.2	208	6	Q95L12	Q95L12 sus scrofa
28	213	25.8	191	13	Q9DFC9	Q9DFC9 brachydanio
29	208	25.2	208	13	Q9PYV1	Q9PYV1 xenopus lae
30	208	25.2	212	11	Q9ESL9	Q9ESL9 mus musculu
31	205.5	24.9	207	11	Q9ESL8	Q9ESL8 mus musculu
32	205.5	24.9	207	11	Q9ERQ5	Q9ERQ5 mus musculu
33	204	24.7	212	11	Q9EST9	Q9EST9 ratius norv
34	203	24.6	212	13	Q95KX7	Q95KX7 macaca fasc
35	202.5	24.5	212	13	Q42407	Q42407 gallus gall
36	200.5	24.3	301	5	Q8TBA3	Q8TBA3 ciona savig
37	195.5	23.7	134	13	Q90XQ3	Q90XQ3 ambystoma m
38	194.5	23.5	213	6	Q9N1B9	Q9N1B9 ovis aries
39	193	23.4	208	4	Q96P59	Q96P59 homo sapien
40	192	23.2	162	11	Q8V179	Q8V179 ratius norv
41	191.5	23.2	186	6	Q95L47	Q95L47 mustela vis
42	191	23.1	162	6	Q8SP12	Q8SP12 equus caball
43	189.5	22.9	237	13	Q91A16	Q91A16 gallus gall
44	189.5	22.9	247	11	Q8R5L7	Q8R5L7 ratius norv
45	189	22.9	112	13	Q90XP9	Q90XP9 ambystoma m

## ALIGNMENTS

RESULT 1  
ID P78443 PRELIMINARY; PRT; 196 AA.  
AC P78443;  
DT 01-MAY-1997 (TREMBLrel. 03, Created)  
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)  
DT 01-JUN-2002 (TREMBLrel. 21, Last annotation update)  
DE 21 kDa basic fibroblast growth factor (BFGF).  
GN BFGF.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Homidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A.  
RX MEDLINE=89184522; PubMed=2538817;  
RA Prates H., Kagnad M., Prates A.C., Klagsbrun M., Leijas J.M.,  
RA Liauzun P., Chalou P., Tauber J.P., Amalric F., Smith J.A., Caput D.,  
RT "High molecular mass forms of basic fibroblast growth factor are  
RT initiated by alternative CUG codons." ;  
RT Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).  
RL [2]  
RP SEQUENCE OF 81-168 FROM N.A.  
RX MEDLINE=93038590; PubMed=1417798;  
RA Watson R., Anthony F., Pickett M., Lambden P., Maeson G.M.,  
RA Thomas E.U.;  
RT "Reverse transcription with nested polymerase chain reaction shows  
RT expression of basic fibroblast growth factor transcripts in human  
RT granulosa and cumulus cells from in vitro fertilisation patients." ;  
RL Biochem. Biophys. Res. Commun. 187:1227-1231(1992).  
DR EMBL; J04513; AA5252.1; -.  
DR EMBL; S47380; AADI3853.1; -.  
DR HSPD; P09038; 1BFF.  
DR InterPro; IPR002209; HB/F\_growthfact.  
DR InterPro; IPR002348; IIL\_HBGF.  
DR Pfam; PF00167; FGF\_1.  
DR PRINTS; PR00262; FDIHBGF.  
DR ProDom; PD000831; HB/F\_growthfact; 1.  
DR SMART; SM00442; FGF; 1.



DR PROSITE; PS00247; HBG\_FGF\_1.  
SQ SEQUENCE 196 AA; 21203 MW; DGB5447137B60343 CRC64;  
Query Match 100.0%; Score 826; DB 4; Length 196;  
Best Local Similarity 100.0%; Pred. No. 8,8e-82;  
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGSGAPFPFGHFKDPRKLYCKNGGFLLRIHPDGRVDGVRKSDPHI 60  
DB 42 MAAGSITLPLPEDGSGAPFPFGHFKDPRKLYCKNGGFLLRIHPDGRVDGVRKSDPHI 101

QY 61 KLQLOAERGVVSIKVCANRYLAKKEDGRLLASCVTDECFEERLESNNYNTYRSRY 120  
DB 102 KLQLOAERGVVSIKVCANRYLAKKEDGRLLASCVTDECFEERLESNNYNTYRSRY 161

QY 121 TSWYVALKRTGOYKLGSKTGPQKALFLPMSAKS 155  
DB 162 TSWYVALKRTGOYKLGSKTGPQKALFLPMSAKS 196

RESULT 2  
Q925A3 PRELIMINARY; PRT; 153 AA.  
AC Q925A3;  
DT 01-DEC-2001 (TREMBlrel. 19, Created)  
DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
DE Fibroblast growth factor 2.  
GN FGF2.  
OS Mus musculus (Mouse).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.  
OX NCBI\_TaxID=10090;  
RN [1]  
RP SEQUENCE FROM N.A.  
RC STRAIN=FVB/N;  
RA Dicks R.P., Gried A.E.;  
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
RT expressed in mouse embryos."  
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.  
DR EMBL; AY027551; AAK52308.1;  
DR InterPro; IPR002209; HB/F\_growthfact.  
DR Pfam; PF00167; FGF\_1.  
DR ProDom; PD000831; HB/F\_growthfact; 1.  
SQ SEQUENCE 153 AA; 17024 MW; AD8163CDBFA2PAB CRC64;

Query Match 93.0%; Score 768; DB 11; Length 153;  
Best Local Similarity 94.2%; Pred. No. 1.3e-75;  
Matches 146; Conservative 5; Mismatches 2; Indels 2; Gaps 2;

QY 1 MAAGSITLPLPEDGSGAPFPFGHFKDPRKLYCKNGGFLLRIHPDGRVDGVRKSDPHI 60  
DB 1 MAAGSITLPLPEDGSGAPFPFGHFKDPRKLYCKNGGFLLRIHPDGRVDGVRKSDPHI 59

QY 61 KLQLOAERGVVSIKVCANRYLAKKEDGRLLASCVTDECFEERLESNNYNTYRSRY 120  
DB 60 KLQLOAERGVVSIKVCANRYLAKKEDGRLLASCVTDECFEERLESNNYNTYRSRY 118

QY 121 TSWYVALKRTGOYKLGSKTGPQKALFLPMSAKS 155  
DB 119 TSWYVALKRTGOYKLGSKTGPQKALFLPMSAKS 153

RESULT 3  
Q60487 PRELIMINARY; PRT; 170 AA.  
AC Q60487;  
DT 01-NOV-1996 (TREMBlrel. 01, Created)  
DT 01-MAY-2000 (TREMBlrel. 13, Last sequence update)  
DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
DE Fibroblast growth factor 2 (FGF-2) (Fibroblast growth factor, basic)  
DE (HBGF) (Heparin-binding growth factor 2) (HBGF-2) (Prostatorphin)  
DE (Prostatic growth factor) (Fragments).

GN FGF2.  
OS Cavia porcellus (Guinea pig).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.  
OX NCBI\_TaxID=10141;  
RN [1]  
RP SEQUENCE OF 53-170 FROM N.A.  
RC TISSUE=PROSTATE;  
RA Ricciardelli C.;  
RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.  
RN [2]  
RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.  
RX MEDLINE=89273588; PubMed=2730645;  
RA Sommer A., Moscatelli D., Rifkin D.B.;  
RT "An amino-terminally extended and post-translationally modified form  
RT of a 25kD basic fibroblast growth factor";  
RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).  
RN [3]  
RP PARTIAL SEQUENCE, AND METHYLATION.  
RX MEDLINE=91322114; PubMed=1713785;  
RA Burgess W.H., Bizik J., Wehlman T., Quarto N., Rifkin D.B.;  
RT "Direct evidence for methylation of arginine residues in high  
RT molecular weight forms of basic fibroblast growth factor.";  
RL Cell Regul. 2:87-93(1991).  
RN [4]  
RP CHARACTERIZATION.  
RX MEDLINE=87289686; PubMed=3475702;  
RA Moscatelli D., Joseph-Silverstein J., Manejias R., Rifkin D.B.;  
RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high  
RT molecular weight form of basic fibroblast growth factor.";  
RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).  
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC  
CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC  
CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND  
CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOTACTANT FOR  
CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,  
CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS  
CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO  
CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).  
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST  
CC ONE HEPARAN SULFATE (BY SIMILARITY).  
CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS, 18 KDA AND 25 KDA  
CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION  
CC INITIATION SITES. BOTH FORMS ARE ACTIVE.  
CC -1- PFM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLY).  
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.  
CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE  
CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF  
CC PARTIAL AMINO-ACID SEQUENCING.  
DR EMBL; L75974; AAA85394.1; ALT\_FRAME.  
DR HSSP; P09038; IBLA.  
DR InterPro; IPR002209; HB/F\_growthfact.  
DR PRINTS; PR00262; IL1HBGF.  
DR ProDom; PD000831; HB/F\_growthfact; 1.  
DR SMART; SM00442; FGF\_1.  
DR PROSITE; PS00247; HBG\_FGF\_1.  
KW Growth factor; Mitogen; Vascularization; Heparin-binding;  
KW Alternative initiation; Methylation; Phosphorylation;  
KW Developmental protein.  
FT NON\_TER 1  
FT NON\_CONS 15 16  
FT CHAIN <1 170  
FT CHAIN 22 170  
FT INIT\_MET 22 22  
FT DOMAIN 11 14  
FT NON\_CONS 50 51  
FT SITE 61 63  
FT SITE 103 105  
FT BINDING 50 51  
FT BINDING 105 105

25 KDA BASIC FIBROBLAST GROWTH FACTOR.  
18 KDA BASIC FIBROBLAST GROWTH FACTOR.  
FOR 18 KDA FORM.  
POLY-ALA.  
CELL ATTACHMENT SITE (POTENTIAL).  
CELL ATTACHMENT SITE (POTENTIAL).  
HEPARIN (BY SIMILARITY).  
HEPARIN (BY SIMILARITY).

```

FT BINDING 143 159 HEPARIN (BY SIMILARITY).
FT MOD RES 4 4 METHYLATION (MONO- OR DI-).
FT MOD RES 6 6 METHYLATION (MONO- OR DI-).
FT MOD RES 8 8 METHYLATION (MONO- OR DI-).
FT MOD RES 8 8 PHOSPHORYLATION (BY SIMILARITY).
FT MOD RES 136 136 PHOSPHORYLATION (BY SIMILARITY).
SQ SEQUENCE 170 AA; 18354 MW; F36HBC7365FE8E CRC64;

Query Match 89.8%; Score 742; DB 11; Length 170;
Best Local Similarity 91.6%; Pred. No. 1e-72;
Matches 142; Conservative 3; Mismatches 4; Indels 6; Gaps 1;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYKNGGFLLRHPDGRVDGVRKSDPHI 60
DB 22 MAAGSITTLPALPEDGSGAFPPGHFKDP-----NCGFLLRHPDGRVDGVRKSDPHI 75
QY 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120
DB 76 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 135
QY 121 TSWYVALKRTGYKLGSKTGPQOKAILFLPMSAKS 155
DB 136 SSWYVALKRTGYKLGSKTGPQOKAILFLPMSAKS 170

RESULT 4
Q00Y92 PRELIMINARY; PRT; 155 AA.
ID Q00Y92;
AC Q00Y92;
DT 01-DEC-2001 (TReMBLrel. 19, Created)
DT 01-DEC-2001 (TReMBLrel. 19, Last sequence update)
DT 01-JUN-2002 (TReMBLrel. 21, Last annotation update)
DE Fibroblast growth factor-2.
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidae; Salamandridae; Cynops.
OC NCBI_Taxid=8330;
RN (1)
RP SEQUENCE FROM N.A.
RA Susaki K., Nakamura K., Chiba C., Saito T.;
RT "Expression of FGF2 during newt retinal development and
RT regeneration."
RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB064664; BAB63249.1;
DR InterPro; IPR002209; HB/F_growthfact.
DR Pfam; PF00167; FGF_1.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR PROSITE; PS00247; HBGF_FGF; UNKNOWN; 1.
SQ SEQUENCE 155 AA; 17278 MW; 2B583058538ABBD9 CRC64;

Query Match 85.2%; Score 704; DB 13; Length 155;
Best Local Similarity 85.8%; Pred. No. 1.2e-68;
Matches 133; Conservative 9; Mismatches 13; Indels 0; Gaps 0;

QY 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYKNGGFLLRHPDGRVDGVRKSDPHI 60
DB 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYKNGGFLLRHPDGRVDGVRKSDPHI 60
QY 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120
DB 61 KLOQAERGVVSIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKY 120
QY 121 TSWYVALKRTGYKLGSKTGPQOKAILFLPMSAKS 155
DB 121 SSWYVALKRTGYKLGSKTGPQOKAILFLPMSAKS 155

RESULT 5
Q07767 PRELIMINARY; PRT; 130 AA.
ID Q07767;
AC Q07767;
DT 01-NOV-1998 (TReMBLrel. 08, Created)

```

```

DT 01-NOV-1998 (TReMBLrel. 08, Last sequence update)
DT 01-JUN-2002 (TReMBLrel. 21, Last annotation update)
DE Basic fibroblast growth factor (bFGF) (FGF-2) (Heparin-binding growth
DE factor 2) (HBGF-2) (Prostatropin) (Prostatic growth factor)
DE (Fragment).
DE
GN bFGF.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OK NCBI_Taxid=9615;
RN (1)
RP SEQUENCE FROM N.A.
RA TROCHTA O. A., JACOBS R. M., LAHARTE J. J.;
RT "The role of bFGF in canine Hemangiosarcoma."
RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC
CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR
CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS
CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST
CC ONE HEPARAN SULFATE (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC EMBL; AF060562; AAC35912.1; -.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HB/F_growthfact.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HB/F_growthfact; 1.
DR SMART; SM00442; FGF_1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KM Growth factor; Mitogen; Vascularization; Heparin-binding;
KW Phosphorylation; Developmental protein.
FT NON_TER 1
FT SITE 21 23 CELL ATTACHMENT SITE (POTENTIAL).
FT SITE 63 65 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 10 11 HEPARIN (BY SIMILARITY).
FT BINDING 65 65 HEPARIN (BY SIMILARITY).
FT BINDING 103 119 HEPARIN (BY SIMILARITY).
FT MOD RES 48 48 PHOSPHORYLATION (BY SIMILARITY).
FT MOD RES 96 96 PHOSPHORYLATION (BY SIMILARITY).
FT NON_TER 130
SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match 82.6%; Score 682; DB 6; Length 130;
Best Local Similarity 97.7%; Pred. No. 2.4e-66;
Matches 127; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 26 FKPKRLCYKNGGFLLRHPDGRVDGVRKSDPHIKLOQAERGVVSIKGVCANRYLAM 85
DB 1 FKPKRLCYKNGGFLLRHPDGRVDGVRKSDPHIKLOQAERGVVSIKGVCANRYLAM 60
QY 86 KEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRTGYKLGSKTGPQOKA 145
DB 61 KEDGRLASKCVTDECFEERLESNNYNTYRSRKYSSWYVALKRTGYKLGSKTGPQOKA 120
QY 146 ILFLPMSAKS 155
DB 121 ILFLPMSAKS 130

RESULT 6
Q080F9 PRELIMINARY; PRT; 155 AA.
ID Q080F9;
AC Q080F9;
DT 01-JUN-2002 (TReMBLrel. 21, Created)
DT 01-JUN-2002 (TReMBLrel. 21, Last sequence update)
DT 01-JUN-2002 (TReMBLrel. 21, Last annotation update)

```

DE Basic fibroblast growth factor.  
 GN FGF2.  
 OC Fugu rubripes (Japanese pufferfish) (Takifugu rubripes).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;  
 OC Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes;  
 OC Tetraodontidae; Takifugu.  
 OC NCBI\_TaxID=31033;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA Botcherby M.R.;  
 RT "Comparative vertebrate genomic sequence analysis studies based on  
 Fugu rubripes."  
 RL Thesis (2001), University College London, London, United Kingdom.  
 DR EMBL; AJ426040; CABI9830.1; -  
 SO SEQUENCE 155 AA; 17113 MW; ABEF12BDC78FBE CRC64;

Query Match 75.4%; Score 623; DB 13; Length 155;  
 Best Local Similarity 77.3%; Pred. No. 7.8e-60;  
 Matches 119; Conservative 5; Mismatches 30; Indels 0; Gaps 0;

QY 1 MAAGSITLPLPEDGGGAPFPQHPKRLCYKNGGFFRIHPDGRVDSREKSDPHI 60  
 DB 1 MATGCTTTLSTPDDGGGFPSPKDKRLCYKNGGFFRIKSDGAVDGTREKTDPHI 60  
 QY 61 KLOQAERGVASIKGYCANRYLAKMKDGRLLASKCVTDECFPERLESNNYTRSRKY 120  
 DB 61 KLOQAATSVGEVVIKGYCANRYLAKMKDGRLLASKCVTDECFPERLESNNYTRSRKY 120  
 QY 121 TSMYVALKRTGQYKLGSKTGGQKAILFLPMSAK 154  
 DB 121 PNMEVGLTRGTGNYKSGTKTGQKAILFLPMSAK 154

RESULT 7  
 Q9BDX1 PRELIMINARY; PRT; 111 AA.  
 ID Q9BDX1  
 AC Q9BDX1  
 DT 01-JUN-2001 (TEMBLrel. 17, Created)  
 DT 01-JUN-2001 (TEMBLrel. 17, Last sequence update)  
 DT 01-JUN-2002 (TEMBLrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (Fragment).  
 OS Macaca mulatta (Rhesus macaque).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;  
 OC Cercopithecinae; Macaca.  
 OC NCBI\_TaxID=9544;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA Sakhon H.S., Keller J.K., Spindel E.R.;  
 RT "Alterations in Collagen and Elastin Gene Expression in Fetal  
 Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A  
 Possible Role of alpha1 Nicotinic Acetylcholine Receptor in Persistent  
 Pulmonary Hypertension."  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF251270; AAK37962.1; -  
 DR HSSP; P09038; 2RGF.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1  
 FT NON\_TER 111  
 SO SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match 70.8%; Score 585; DB 6; Length 111;  
 Best Local Similarity 100.0%; Pred. No. 6.3e-56;  
 Matches 111; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 43 IHPDGVGVREKSDPHIKLOQAERGVASIKGYCANRYLAKMKDGRLLASKCVTDECF 102

DB 1 IHPDGVGVREKSDPHIKLOQAERGVASIKGYCANRYLAKMKDGRLLASKCVTDECF 60  
 QY 103 FFERLESNNYTRSRKYTSWYVALKRTGQYKLGSKTGGQKAILFLPMSA 153  
 DB 61 FFERLESNNYTRSRKYTSWYVALKRTGQYKLGSKTGGQKAILFLPMSA 111

RESULT 8  
 Q98TD8 PRELIMINARY; PRT; 125 AA.  
 ID Q98TD8  
 AC Q98TD8  
 DT 01-JUN-2001 (TEMBLrel. 17, Created)  
 DT 01-JUN-2001 (TEMBLrel. 17, Last sequence update)  
 DT 01-JUN-2002 (TEMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor-2 (Fragment).  
 GN FGF-2.  
 OS Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.  
 OC NCBI\_TaxID=8330;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA Mizuno N., Hayashi T., Konoh H., Okamoto M.;  
 RT "Cynops fibroblast growth factor-2."  
 RL Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AB049625; BAB40835.1; -  
 DR HSSP; P09038; 1BFF.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF\_1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR PRODOM; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF\_1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1  
 FT NON\_TER 125  
 SO SEQUENCE 125 AA; 14244 MW; 5C27F41DC6560C13 CRC64;

Query Match 68.6%; Score 567; DB 13; Length 125;  
 Best Local Similarity 87.1%; Pred. No. 7.2e-54;  
 Matches 108; Conservative 7; Mismatches 9; Indels 0; Gaps 0;

QY 32 LYCKNGGFFRIHPDGVGVREKSDPHIKLOQAERGVASIKGYCANRYLAKMKDGR 91  
 DB 2 LYCKNGGFFRIKSDGAVDGTREKTDPHIKLOQAERGVASIKGYCANRYLAKMKDGR 121  
 QY 92 LASKCVTDECFPERLESNNYTRSRKYTSWYVALKRTGQYKLGSKTGGQKAILFLP 151  
 DB 62 MALKMTIDECFFPERLESNNYTRSRKYSDWYVALKRTGQYKNGSKTGAGQKAILFLP 121

QY 152 SAKS 155  
 DB 122 SAKS 125

RESULT 9  
 Q9N1S7 PRELIMINARY; PRT; 108 AA.  
 ID Q9N1S7  
 AC Q9N1S7  
 DT 01-OCT-2000 (TEMBLrel. 15, Created)  
 DT 01-OCT-2000 (TEMBLrel. 15, Last sequence update)  
 DT 01-JUN-2002 (TEMBLrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (Fragment).  
 GN BFGF.  
 OS Capreolus capreolus (roe deer).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;  
 OC Cervidae; Odocoileinae; Capreolus.  
 OC NCBI\_TaxID=9858;  
 RN (1)  
 RP SEQUENCE FROM N.A.  
 RA TISSUE=TESTIS;  
 RC MEDLINE=20532861; Pubmed=11078967;

RA Wegener A., Bloetner S., Goritz F., Fickel J.;  
 RT "Detection of growth factors in the testis of roe deer (Capreolus  
 capreolus).";  
 RL Anim. Reprod. Sci. 64:65-75(2000).  
 DR EMBL; AF152587; AAF73226.1; -.  
 DR HSBP; P09038; 4FGF.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1 108  
 FT 108  
 SQ SEQUENCE 108 AA; 12399 MW; 68C7B7244214567E CRC64;

Query Match 67.9%; Score 561; DB 6; Length 108;  
 Best Local Similarity 98.1%; Pred. No. 2.7e-53;  
 Matches 106; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 42 RHHPGRVDGVEKSDPHIKLOLAEEGVVSIKVCANRYLAMKEDGRLLASKCVTDEC 101  
 Db 1 RHHPGRVDGVEKSDPHIKLOLAEEGVVSIKVCANRYLAMKEDGRLLASKCVTDEC 60  
 Qy 102 FFEERLESNNNTYRSKRYTSWYVALKRTGYKLGSKTGPQKAILFL 149  
 Db 61 FFEERLESNNNTYRSKRYTSWYVALKRTGYKLGSKTGPQKAILFL 108

## RESULT 10

Q925A1 PRELIMINARY; PRT; 109 AA.  
 AC Q925A1;  
 DT 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
 DE Fibroblast growth factor 2.  
 GN FGF2.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.  
 CX NCBI\_TaxId=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=FVB/N;  
 RA Dicks R.P., Grieb A.E.;  
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
 expressed in mouse embryos.";  
 RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY027558; AAK52310.1; -.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; HB/F\_growthfact; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; UNKNOWN 1.  
 SQ SEQUENCE 109 AA; 12388 MW; 61074A0E3303C860 CRC64;

Query Match 59.3%; Score 490; DB 11; Length 109;  
 Best Local Similarity 97.9%; Pred. No. 1.4e-45;  
 Matches 94; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 60 IKLOLAEEGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRK 119  
 Db 14 IKLOLAEEGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRK 73  
 Qy 120 YTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
 Db 74 YTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 109

## RESULT 11

Q925A2 PRELIMINARY; PRT; 112 AA.  
 AC Q925A2;  
 DT 01-DEC-2001 (TREMBlrel. 19, Created)  
 DT 01-DEC-2001 (TREMBlrel. 19, Last sequence update)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
 DE Fibroblast growth factor 2.  
 GN FGF2.  
 OS Mus musculus (Mouse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Mus.  
 CX NCBI\_TaxId=10090;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC STRAIN=FVB/N;  
 RA Dicks R.P., Grieb A.E.;  
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are  
 expressed in mouse embryos.";  
 RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AY027557; AAK52309.1; -.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; HB/F\_growthfact; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; UNKNOWN 1.  
 SQ SEQUENCE 112 AA; 12725 MW; B00557ABE0257CCB CRC64;

Query Match 58.8%; Score 486; DB 11; Length 112;  
 Best Local Similarity 97.9%; Pred. No. 4e-45;  
 Matches 93; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

Qy 61 KLOLAEEGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 120  
 Db 18 KLOLAEEGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYRSRY 77  
 Qy 121 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 155  
 Db 78 TSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 112

## RESULT 12

P79706 PRELIMINARY; PRT; 101 AA.

AC P79706;  
 DT 01-MAY-1997 (TREMBlrel. 03, Created)  
 DT 01-MAY-1997 (TREMBlrel. 03, Last sequence update)  
 DT 01-JUN-2002 (TREMBlrel. 21, Last annotation update)  
 DE Basic FGF (Fragment).  
 OS Cynops pyrrhogaster (Japanese common newt).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 CC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.  
 CX NCBI\_TaxId=8330;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=EMBRYO;  
 RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takehima K.,  
 RA Kanada T.;  
 RT "Serial expression of the genes in a mesodermalizing ectoderms of  
 early Cynops gastrula.";  
 RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; D89443; BAA13958.1; -.  
 DR HSBP; P09038; 4FGF.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; IL1HBGF.  
 DR ProDom; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1 101  
 FT 101  
 SQ SEQUENCE 101 AA; 11907 MW; 74A16C866C1F457A CRC64;

Query Match 57.6%; Score 476; DB 13; Length 101;  
 Best Local Similarity 87.1%; Pred. No. 4.3e-44;  
 Matches 88; Conservative 7; Mismatches 6; Indels 0; Gaps 0;

QY 29 PKRLCKKGGFLLRHPGRVDGVAEKSDPHIKLOLAEBRGVSIKVCANRYLAMKD 88  
 DB 1 PKRLCKKGGFLLRHPGRVDGVAEKSDPHIKLOLAEBRGVSIKVCANRYLAMKD 60  
 QY 89 GRLLASKCVTDECFEELSNNTYRSRKYTSWYVALKR 129  
 DB 61 GRLLASKCVTDECFEELSNNTYRSRKYTSWYVALKR 101

## RESULT 13

007659 PRELIMINARY; PRT; 146 AA.  
 AC 007659;  
 DT 01-NOV-1996 (TReMBLrel. 01, Created)  
 DT 01-NOV-1996 (TReMBLrel. 01, Last sequence update)  
 DT 01-JUN-2002 (TReMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor.  
 GN BFGF.  
 OS Gallus gallus (Chicken).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;  
 OC Gallus.  
 OX NCBI\_TaxID=9031;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RX MEDLINE=93246053; PubMed=7683281;  
 RA Borja A.Z., Zeller R., Meijers C.;  
 RT "Expression of alternatively spliced bfgf first coding exons and  
 RT antisense mRNAs during chicken embryogenesis.";  
 RL Dev. Biol. 157:110-118(1993).  
 RN [2]  
 RP SEQUENCE OF 52-85 FROM N.A.  
 RX MEDLINE=90382254; PubMed=2401202;  
 RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;  
 RT "Fibroblast growth factor during mesoderm induction in the early chick  
 RT embryo.";  
 RL Development 109:387-393(1990).  
 DR EMBL; M95706; AAA48616.1; -;  
 DR EMBL; X56804; CAA40139.1; -;  
 DR HSP; P09038; 28FH.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; ILIHGF.  
 DR ProDom; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 SQ SEQUENCE 146 AA; 16182 MW; A7CB97BCB456E247 CRC64;

Query Match 56.8%; Score 469.5; DB 13; Length 146;  
 Best Local Similarity 65.3%; Pred. No. 3.5e-43;  
 Matches 96; Conservative 9; Mismatches 15; Indels 27; Gaps 2;

QY 9 LPALPEDGSGAFPPGHKPKRLCKKGGFLLRHPGRVDGVAEKSDPHIKLOLAEE 68  
 DB 27 VPSLSPDGGV-----LWERVRPDERVSAM-----VKLOLAEE 59  
 QY 69 RGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEELSNNTYRSRKYTSWYVALK 128  
 DB 60 RGVVSIKVCANRYLAMKEDGRLLASKCVTDECFEELSNNTYRSRKYTSWYVALK 119  
 QY 129 RTGOYKLGSKTGGOKAILFLPMSAKS 155  
 DB 120 RTGOYKGPCKTGGOKAILFLPMSAKS 146

RESULT 14  
 Q8WMP4

ID Q8WMP4 PRELIMINARY; PRT; 87 AA.

AC Q8WMP4;  
 DT 01-MAR-2002 (TReMBLrel. 20, Created)  
 DT 01-MAR-2002 (TReMBLrel. 20, Last sequence update)  
 DT 01-JUN-2002 (TReMBLrel. 21, Last annotation update)  
 DE Fibroblast growth factor 2 (fragment).  
 GN FGF2.  
 OS Equus caballus (Horse).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.  
 OX NCBI\_TaxID=9796;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=ENDOMETRIUM;  
 RA Einpanier R.;  
 RL Submitted (JUN-2001) to the EMBL/GenBank/DBJ databases.  
 RN [2]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=ENDOMETRIUM;  
 RA Welter H.;  
 RL Thesis (2002), Department of Physiology, University of Munich,  
 RL Freising, Germany.  
 DR EMBL; AJ319906; GAC86028.1; -;  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.  
 DR PRINTS; PR00262; ILIHGF.  
 DR ProDom; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; UNKNOWN\_1.  
 FT NON\_TER 1  
 FT NON\_TER 87  
 SQ SEQUENCE 87 AA; 10128 MW; 52382DDF0245739E CRC64;

Query Match 55.3%; Score 457; DB 6; Length 87;  
 Best Local Similarity 98.9%; Pred. No. 4.2e-42;  
 Matches 86; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 41 LRHPDGVDPVRKSPDHILKLOLAEBRGVSIKVCANRYLAMKEDGRLLASKCVTDE 100  
 DB 1 LRHPDGVDPVRKSPDHILKLOLAEBRGVSIKVCANRYLAMKEDGRLLASKCVTDE 60  
 QY 101 CFFERLESNNNTYRSRKYTSWYVAL 127  
 DB 61 CFFERLESNNNTYRSRKYTSWYVAL 87

## RESULT 15

Q8WMP4 PRELIMINARY; PRT; 76 AA.  
 AC Q8WMP4;  
 DT 01-OCT-2000 (TReMBLrel. 15, Created)  
 DT 01-OCT-2000 (TReMBLrel. 15, Last sequence update)  
 DT 01-JUN-2002 (TReMBLrel. 21, Last annotation update)  
 DE Basic fibroblast growth factor (fragment).  
 GN FGF-2.  
 OS Ovis aries (Sheep).  
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;  
 OC Bovidae; Caprinae; Ovis.  
 OX NCBI\_TaxID=9940;  
 RN [1]  
 RP SEQUENCE FROM N.A.  
 RC TISSUE=FETAL PLACENTAL ARTERY;  
 RA Zheng J., Tsol S.C., Magness R.R.;  
 RT "Growth factor expression in ovine fetal placental artery endothelial  
 RT cells.";  
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.  
 DR EMBL; AF250027; AAF65566.1; -;  
 DR HSP; P09038; 4FGF.  
 DR InterPro; IPR002209; HB/F\_growthfact.  
 DR InterPro; IPR002348; IL1\_HBGF.  
 DR Pfam; PF00167; FGF; 1.

DR PRINTS; PR00262; ILHBGF.  
 DR Prodom; PD000831; HB/F\_growthfact; 1.  
 DR SMART; SM00442; FGF; 1.  
 DR PROSITE; PS00247; HBGF\_FGF; 1.  
 FT NON\_TER 1  
 FT NON\_TER 76  
 SQ SEQUENCE 76 AA; 8796 MW; 7D984E2F97453B20 CRC64;

Query Match 41.3%; Score 341; DB 6; Length 76;  
 Best Local Similarity 88.0%; Pred. No. 1.4e-29;  
 Matches 66; Conservative 1; Mismatches 0; Indels 8; Gaps 1;

QY 57 DPHITLQQAEEERGVSIGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYR 116  
 Db 1 DPHITLQQAEEERGVSIGVCANRYLAMKEDGRLASKCVTDECFPERLESNNYNTYR 60  
 QY 117 SRKY-----TSW 123  
 Db 61 SRKYSQLVCGTETNW 75

Search completed: December 16, 2002, 17:57:55  
 Job time : 27 secs